

CHILD-CENTERED PLAY THERAPY AND EMOTIONAL AND BEHAVIORAL
PROBLEMS OF CHILDREN ON THE AUTISM SPECTRUM

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Dissertation Prepared for the Degree of
DOCTOR OF PHILOSOPHY

UNIVERSITY OF NORTH TEXAS

July 2023

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Chung, Regine Ki Ki. *Child-Centered Play Therapy and Emotional and Behavioral Problems of Children on the Autism Spectrum*. Doctor of Philosophy (Counseling), July 2023, 239 pp., 6 tables, 2 figures, 5 appendices, references, 169 titles.

The current study is the first repeated-measures design exploring the impact of child-centered play therapy (CCPT), an evidence-based child psychotherapy intervention, on autistic children's social-emotional assets, and emotional and behavioral problems across four times during intervention based on teacher reports. Participants consisted of 19 autistic children recruited from two Title-1 elementary schools in the southwest United States who were aged between 5 years and 8.25 years ($M = 6.22$, $SD = .91$), presented with varied levels of cognitive functioning and speech and language abilities. Over 60% of participants were identified by their parents as children of color. Results indicated participants' increased time in CCPT predicted statistically significant improvement in social-emotional assets measured by Social-Emotional Assets and Resilience Scales-Teacher (SEARS-T) total score with a large effect size. Results also indicated participants' increased time in CCPT predicted a statistically significant reduction in emotional and behavioral problems of irritability, social withdrawal, and hyperactivity/noncompliance, measured by Aberrant Behavior Checklist-Second Edition (ABC- 2), with large effect sizes. Findings of this study revealed substantive changes in social-emotional assets as early as 8 CCPT sessions, and reduction of emotional and behavioral concerns as early as 12 CCPT sessions. Clinical significance, implications for practice, and limitations of the study are discussed.

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By

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ACKNOWLEDGEMENTS

This dissertation is the fruit of my relationships with many amazing individuals. I am forever grateful for all the love, guidance, and encouragement I received throughout this challenging yet rewarding journey. Dee, thank you for every moment we spent together. You have inspired me to accept and love my true self. Your empathy and trust have enabled me to follow my passion with courage. Peggy, thank you for your role-modeling personally and professionally. Your commitment to social justice advocacy has inspired me to embody my own culture and advocate for underserved populations. LaKaavia, thank you for all your affirmations when I needed them most. Elizabeth, thank you for celebrating every small step I made along the way. To each child in this study, thank you for letting me into your world, and for touching my heart.

To my CPT family, and friends within my cohort, who supported the research at different stages; to Eli, Torie, and Ahou, who contributed their expertise and time to the study. To my mentors Tom, Timothy, and Emily, who connected me to UNT Play Therapy. Garry, thank you for believing in my potential before I realized it. Thank you for all that you have done for me, and for the development of play therapy in Hong Kong. Your care and friendship are the gifts I will always cherish.

To my husband, Jason, who offers me unconditional love and gives me new insights every day. I cannot thank you enough for your unwavering trust! To my parents, thank you for the sacrifices you made for me. Your remarkable resilience and persistence have influenced who I am today. Last but not least, thank you my dearest sisters, Christine, Kaka, and Prima, for always being a phone call away, no matter what time zones we are in. I hope you know how important you are in the journey of my dissertation and doctoral program, as well as in my life.

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CHILD-CENTERED PLAY THERAPY AND EMOTIONAL AND BEHAVIORAL PROBLEMS OF CHILDREN ON THE AUTISM SPECTRUM

Autism is a spectrum-type neurodevelopmental condition characterized by persistent difficulties with social competence. Individuals on the autism spectrum often struggle with reciprocal communication and interaction, engage in restrictive or repetitive behaviors, and experience difficulties processing sensory information (American Psychiatric Association [APA], 2022; Centers for Disease Control and Prevention [CDC], 2022a). In the United States, an estimate of 1 in 44 (2.3%) 8-year-old children were identified with autism (CDC, 2020). This ratio was increased by approximately 3.4 times compared to the estimation in 2000. The rise of autism identification necessitates higher demand for services and support for individuals, especially young children. The U.S. National Institute of Mental Health (NIMH, 2022) and the CDC (2022b) recommend that autistic individuals receive a combination of interventions that include social-relational approaches to help them build emotional bonds and improve their social skills; and psychological interventions to improve their mental well-being. However, there is a dearth of research on autism interventions that address autistic children's mental well-being and social-emotional concerns (National Autism Center [NAC], 2015; Wong et al., 2015).

Co-occurring Emotional and Behavioral Problems

Autistic children are at a higher risk for developing emotional and behavioral problems when compared to their neurotypical counterparts (Matson et al., 2009; Salomone et al., 2014; Soke et al., 2016; Wiggins et al., 2022). Along with autism-specific characteristics such as stereotypic behavior and difficulties with interpersonal communication, autistic children frequently present with co-occurring emotional and behavioral challenges such as irritability, noncompliance, and hyperactivity (APA, 2022; Kaat et al., 2014; Matson et al., 2009). These

emotional and behavioral problems may further impede autistic children's learning and social development in multiple settings (Kurzius-Spencer et al., 2018; Matson & Nebel-Schwalm, 2007; Shea et al., 2018). Researchers established that without appropriate intervention, emotional and behavioral problems may continue and worsen in later childhood and adulthood (Berkovits et al., 2017; Horner et al., 2002). These emotional and behavioral problems can cause further social and development impairment among children on the autism spectrum (Galligan et al., 2022), result in physical harm to self and others (Newcomb & Hagopian, 2018; Shea et al., 2018), exacerbate stress within family, and lead to poor quality of life (Berkovits et al., 2017; Masket et al., 2013; Matson et al., 2009). In determining the severity of co-occurring emotional and behavioral problems in autistic children, Kaat et al. (2014) and Norris et al. (2019) defined five emotional and behavioral problems among autistic children. These included Irritability, Social Withdrawal, Stereotypic Behavior, Hyperactivity/Noncompliance, and Inappropriate Speech.

Limitations of Current Autism Intervention

Currently, behavioral interventions adhering to the principles of applied behavior analysis (ABA) are considered evidence-based practice for autism intervention given its effectiveness in increasing developmental skills and reducing autistic behaviors (NAC, 2015; Wong et al., 2015; Virués-Ortega, 2010). Systematic reviews of evidence-based autism interventions, however, revealed a lack of attention to mental health interventions for autistic children (Virués-Ortega; 2010; Wong et al., 2015). Autism researchers and scholars documented several criticisms and limitations for behavioral interventions. First, the adult-directed nature of instruction and strict stimulus control in behavioral interventions does not facilitate spontaneous use of skills (Strain & Schwartz, 2001; Vismara & Rogers, 2010). Secondly, the highly structured teaching

environment in ABA and the use of artificial reinforcers may limit the generalization of skills in natural environment and promote prompt dependency or rote responding (Cumming et al., 2020; Sandoval-Norton et al., 2019; Strain and Schwartz, 2001). Thirdly, effective ABA requires long-term and time intensive procedures, consisting of 10 to 40 hours weekly, for two or more years (Granpeesheh et al. 2009; Virués-Ortega, 2010). Moreover, behavioral interventions are criticized for the use of punitive procedures which may create traumatic experiences and philosophical dissonance with positive behavioral support (Cumming et al., 2020; Sandoval-Norton et al., 2019; Schuck et al., 2022). Although researchers demonstrated that behavioral strategies are effective in increasing developmental skills and decreasing autistic behaviors, behavioral treatment protocols do not address the mental conditions and interpersonal dynamics of individuals on the autism spectrum (Fishbein et al., 2017; Wong et. al, 2015). Due to these limitations of behavioral interventions, the autism community advocated for humanistic interventions that are grounded in respect and appreciation of the integrity of autistic individuals (Cumming et al., 2020; Sandoval-Norton et al., 2019; Schuck et al., 2022).

Moreover, national data revealed underutilization of autism interventions, particularly among communities of color, economically disadvantaged families, and children living in rural areas (Angell et al., 2018; Monz et al., 2019). Researchers suggested sociodemographic factors, educational factors, and language and cultural barriers contributed to a later identification and underutilization of autism services among children of color (Aylward et al., 2021; Tek & Landa, 2012). Distrust of providers and systems of care, and discouragement from their family or community are other causes of disparities in service utilization (Angell et al., 2018). Based on these concerns, autism researchers have advocated for educational campaigns, community awareness activities, and intervention within school settings to support marginalized families in

low-income and minoritized communities (Aylward et al., 2021; Monz et al., 2019; Tek & Landa, 2012). In addition, researchers advocated for multicultural inclusivity in autism services, and urged autism interventionists to consider language accessibility, logistic barriers (e.g., transportation, childcare, and job accommodations) and cultural acceptance in communications (Aylward et al., 2021; Tek & Landa, 2012).

Child-Centered Play Therapy

Child-centered play therapy (CCPT) is an evidence-based mental health intervention for children grounded in person-centered theory (Landreth, 2012; Ray, 2011). Ray et al. (2012) theorized that CCPT, as a “relational communication intervention” (p.166), is well matched with the intrinsic needs of children on the autism spectrum to establish a safe, consistent, and warm relationship that facilitates self-enhancing behaviors. A CCPT therapeutic relationship is signified by the unconditional acceptance, warmth, and empathic understanding from the play therapist. Through experiencing the relational qualities and intentional responses from the play therapist, autistic children are able to explore and express themselves more fully and tap into their inner resources to develop a more positive sense of self and move towards connection with the external environment (Ray et al., 2012).

To date, over 130 CCPT outcome research studies and multiple meta-analyses analyses (see Bratton et al., 2005; Drisko et al., 2020; Lin & Bratton, 2015; and Ray et al., 2015) have been conducted, supporting the use of CCPT for children presenting with internalized and externalized problems, in various settings, and with different cultural and racial backgrounds. The impact of CCPT on aggressive and disruptive behaviors has been established in contemporary experimental research (Ray et al., 2015). Several empirical research studies supported CCPT as a responsive intervention to improve young children’s social-emotional

assets, empathy, and social competence (Blalock et al., 2019; Cheng & Ray, 2016; Wilson & Ray, 2018). Swan and Ray (2014) examined the effects of CCPT on children diagnosed with an intellectual disability in a single-subject research design. Results on two participants indicated 15 sessions of CCPT reduced symptoms of hyperactivity and irritability significantly. This finding indicated the effectiveness of CCPT to improve children's emotional and behavioral behaviors, despite their developmental and cognitive abilities.

Although research exists to support CCPT as an intervention for the autism population, outcome research in CCPT with autistic children is still considered scarce. Early play therapy research with autistic children has mainly been conducted in the form of case studies (e.g., Carden, 2009; Josefi & Ryan, 2004; Kenny & Winick, 2000). In the last decade, play therapists and researchers continued to examine the use of CCPT with children on the autism spectrum utilizing more rigorous research designs. Ware Balch and Ray (2015) evaluated the effectiveness of CCPT in improving social competence of children on the spectrum using a single-case research design (SCRD). Schottelkorb et al. (2020) evaluated the effectiveness of CCPT in reducing core autism symptoms and behavioral problems among children on the autism spectrum, using a randomized controlled trial (RCT). In both studies, children who participated in CCPT demonstrated improvement in attachment-related behaviors and social interactions. Results of these two studies provided initial evidence that CCPT is a viable social-emotional intervention for children on the autism spectrum.

However, the understanding of CCPT as a social-emotional intervention for autistic children is yet to be adequately established due to insufficient empirical support. Limited research exists in exploring the pattern of change among children on the autism spectrum during play therapy interventions. In this regard, researchers identified the need for research evaluating

the effects of CCPT on autistic children across the spectrum, at different levels of intervention. An inquiry in different stages of play therapy will increase clinicians' understanding of the impact of CCPT over time with autistic children.

Purpose of the Study

The primary goal of the current study was to examine the use of CCPT as a social-emotional intervention for children on the autism spectrum. The study explored the relationship between participation in CCPT and changes in emotional and behavioral problems over time. This study sought to answer two research questions of interest. The first research question was: What is the relationship between number of CCPT sessions and changes in autistic child participants' social-emotional assets as reported by teacher? The second research question was: What is the relationship between number of CCPT sessions and changes in autistic child participants' emotional and behavioral problems, including Irritability, Social Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech, as reported by teacher? Specifically, I compared participants' severity of emotional and behavioral problems before and after participation in 8, 12, and 16 sessions of CCPT in order to better understand patterns of change for autistic children.

Method

I used a single-group, repeated-measures analysis of variance (ANOVA) to analyze the relationships between participation in CCPT over time and the emotional and behavioral problems of children on the autism spectrum. By using this design, I measured the growth in the participants' social and emotional assets and emotional and behavioral problems across four points of measurement during CCPT intervention.

Participants

Given the uniqueness and clinical criteria of the population of focus, I adopted a convenience sampling approach to recruit participants in elementary school settings. Upon approval from the Institutional Review Board, I recruited participants from two Title-I elementary schools in the southwestern United States. Specified by the U.S. Department of Education (2018), Title-I schools are those receiving federal financial assistance and at least 40% of their enrollment is comprised of children from economically disadvantaged families. In the two schools, 72.3% and 79.5% of the students are considered economically disadvantaged. Among the participants, 52.6% received free or reduced lunch.

Autistic children who participated in the study were referred by school counselors and teachers. I obtained informed consent from parents and teachers before the screening of participants. The criteria for inclusion included the following: (a) Children were between the ages of 5 years 0 months and 9 years 11 months old; (b) Children were currently receiving school services related to autism diagnosis or previously received an autism spectrum disorder (ASD) diagnosis in accordance with the DSM-5 (APA, 2013) by a mental health professional or physician; (c) Children scored in the At Risk or High Risk range on the total score of the Social Emotional Assets and Resilience Scales (SEARS) or children's score for one or more of the subscales on the Aberrant Behavior Checklist-Second Edition (ABC-2) was above 50th percentile; (d) Teachers of referred children consented to participate and complete assessments; (e) Children did not receive additional mental health services during their participation in the study. Given that children on the autism spectrum typically receive multidisciplinary treatment (Monz et al., 2019; Shoaib et al., 2022), children were eligible to participate in the study if they were receiving adjunct services including occupational therapy, speech and language therapy, or

behavioral intervention. A priori power analysis using G*Power software determined that a minimum sample of 24 participants would be necessary to find a statistical difference within the group over time (four points of data collection). G*Power calculation was based on alpha level .05, minimum power established at .80, and a medium treatment effect size ($f = .25$).

In total, 22 autistic children were recruited, however, three children were not included in the final analysis - one child relocated during the study, and two children had inconsistent school attendance resulting in lack of consistent sessions of CCPT. A total of 19 participants were included in the final study. Of the participants, 18 (94.7%) were educationally placed in autism classrooms, and one (5.3%) was placed in general education classroom with special education services. Participants were aged between 5 years and 8.25 years ($M = 6.22$, $SD = .91$). Parents reported participants' gender identities were 78.9% male ($n = 15$) and 21.1% female ($n = 4$). Parents reported participants racial/ethnic identities were 10.5% African American ($n = 2$), 5.3% Asian American, Sri Lankan ($n = 1$), 21.1% Black ($n = 4$), 21.1%, Hispanic ($n = 4$), 5.3% Hispanic/White ($n = 1$), 31.6% White ($n = 6$), and 5.3% White, one quarter Thai ($n = 1$).

Parents reported participants' levels of impairment of functioning due to autism were indicated as 15.8% mild ($n = 3$), 42.1% moderate ($n = 8$), 26.3% severe ($n = 5$), and 15.8% unspecified ($n = 3$). Of 19 participants, 11 (57.9%) presented with mild to severe intellectual disability, 7(36.8%) presented with no intellectual disability, and one participant's (5.3%) intellectual ability was unknown ($n = 1$). All 19 participants presented with speech and language impairment, 17(89.5%) experienced moderate to severe impairment reported by parent. Based on parent and teacher report, 5 participants (26.3%) were non-speaking, 3 (15.8%) were minimally verbal, 5 (26.3%) used echolalia, and 6 (31.6%) had some form of speech. Parents also reported other conditions such as physical disability, seizures or epilepsy, and chronic sleep problems. In

terms of adjunct services received, 16 participants (84.2%) received speech and language therapy, 8 (42.1%) received behavioral intervention (ABA), 4 (21.1%) received occupational therapy, and 1 (5.3%) received life skills training.

Instruments

Demographic Questionnaire

Parents/guardians completed a demographic questionnaire containing open-ended and multiple-choice questions. The questionnaire included questions about the child's age, gender, race/ethnicity, current autism services, and parent/guardian contact information.

Social-Emotional Assets and Resilience Scales™ (SEARS)

The SEARS is a multi-informant, strength-based, social-emotional assessment system that measures positive social-emotional attributes of children and adolescents from 5 to 18 years (Merrell, 2011). In this study, I utilized the SEARS-Teacher Form (SEARS-T; Merrell et al., 2011). SEARS-T consists of 41 items and includes the following four subscales: Self-Regulation (SR), Social Competence (SC), Empathy (EM), and Responsibility (RE). Items are rated on a 4-point scale ranging from never (0), sometimes (1), often (2), or always (3). Reliability estimates for the SEARS-T were considered very strong with internal consistency subscale coefficients ranging from .91 to .98. Because SEARS-T can be administered without a restriction on the interval between administrations, it was ideally suited for the current study using repeated measures.

Aberrant Behavior Checklist Second Edition (ABC-2)

The Aberrant Behavior Checklist (ABC) is a widely used measure in autism treatment studies validated by multiple researchers (Brinkley et al., 2007; Kaat et al., 2014; Norris et al., 2019). The ABC second edition community form (ABC-2; Aman & Singh, 2017) is a 58-item

rating scale assessing behavior difficulties in individuals with developmental delays. Items are rated on a 4-point rating scale (0 = not at all a problem, 1 = the behavior is a problem but slight in degree, 2 = the problem is moderately serious, 3 = the problem is severe in degree). ABC's behavior rating does not require spoken language, making it an ideal tool for assessing treatment effectiveness for children with severe developmental disabilities (Fok & Bal, 2019). The ABC-2 subscales are designated as I) Irritability, II) Social Withdrawn, III) Stereotypic Behavior IV) Hyperactivity/ Noncompliance, and V) Inappropriate Speech. Miller et al. (2004) reported very good reliability with the ABC based on its use in a special education setting. Aman and Singh (2017) reported good to excellent test-retest reliability with the ABC based on results of multiple studies. Each subscale score of ABC has a high construct validity, interpretation of total score of ABC-2 is not appropriate (Aman & Singh, 2017). Therefore, I used all the five subscales independently in data analyses.

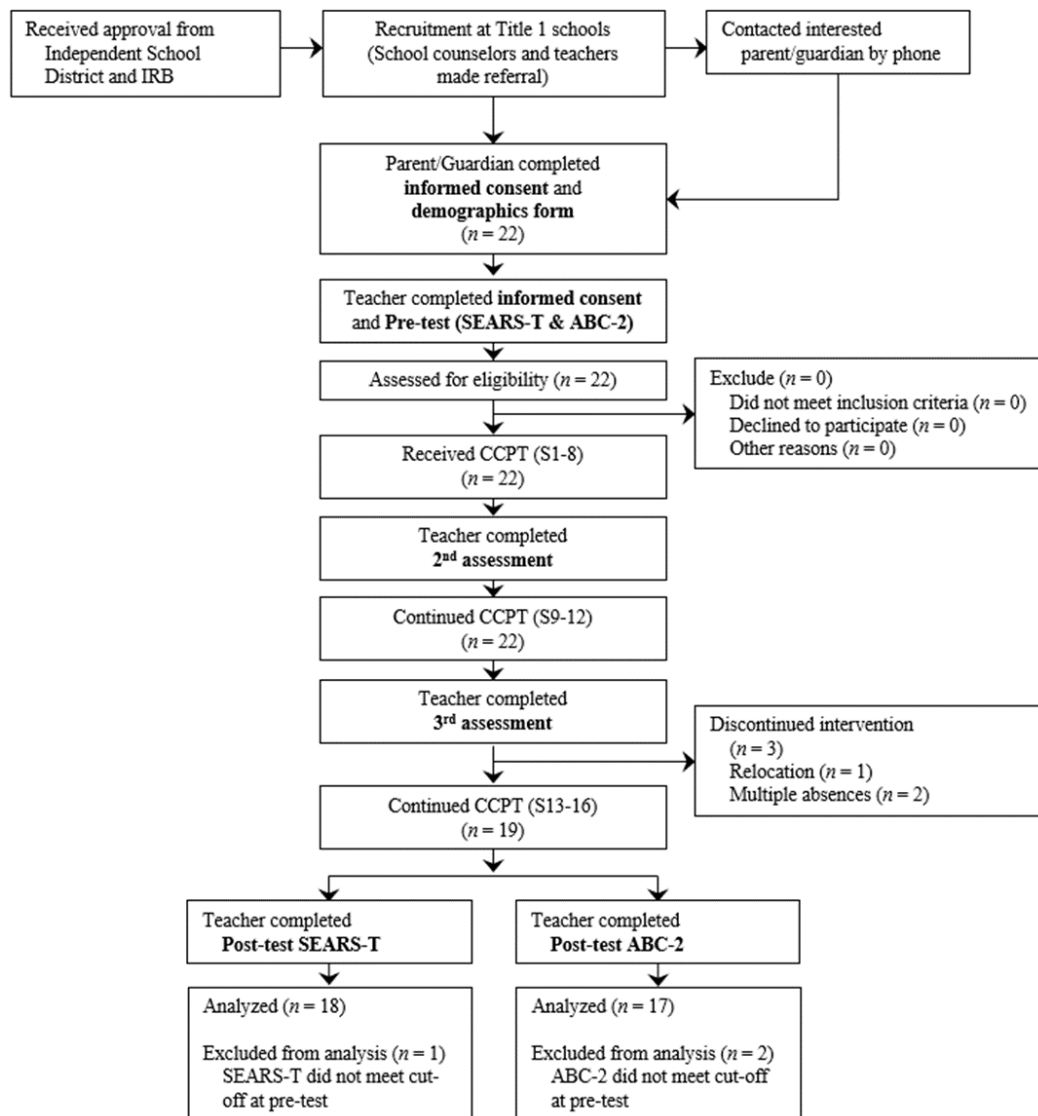
Procedures

I obtained approval from the Independent School District and the Institutional Review Board prior to beginning recruitment. I contacted the school counselors in each school to explain the parameters of the study. The school counselors then sought referrals from teachers to identify potential participants. Confidential envelopes were sent to parents/guardians, containing a letter explaining the purpose and benefits of CCPT, informed consent and demographic questionnaire. Next, I arranged follow-up phone calls with interested parents/guardians to explain the voluntary nature of the study, screening procedures, teacher assessment procedures, and notified parents/guardians of the possibility of not qualifying for services. For two parents who spoke languages other than English, I arranged two translators for phone calls, to ensure their understanding of the informed consent and parameter of the study.

Subsequent to receiving parental informed consent, I distributed informed consent, SEARS-T and ABC-2 to teachers and teacher's aides. I reviewed the informed consent with each teacher and teacher's aide and explained the assessments. Teachers' pretests were completed prior to the beginning of CCPT treatment. I reviewed scores and results of assessments to ensure all participants met inclusion criteria.

Figure 1

Research Procedures and Treatment



Children who met all criteria received 16 individual CCPT sessions, which took place twice weekly and 30-minutes per session, over a period of 8-10 weeks. Due to student absences and relocation, three students only received less than 13 sessions of play therapy and were excluded from study analysis. Along with intervention, I worked with the teachers and teacher's aides to administer SEARS-T and ABC-2 between the 7th and 8th session, between the 11th and 12th session of CCPT, and upon completion of 16 sessions. Figure 1 illustrates the procedures and intervention of the current study.

Intervention

Children participating in the current study received individual CCPT, a culturally and developmental responsive therapeutic intervention for children (Ray, 2011). In CCPT, the play therapist intentionally sets up the playroom with a selection of toys and materials that facilitate the child's expressions and exploration of self and relationships (Ray et al., 2022). The play therapist establishes a facilitative relationship with children through verbal and non-verbal communications in the playroom. Therapeutic skills used in CCPT include empathic responses, returning responsibility, esteem building, facilitating relationship, therapeutic limit setting, and facilitating emotional expression (Ray, 2011).

For this study, play therapists followed the treatment protocol outlined in Ray's (2011) CCPT treatment manual. Additionally, play therapists followed Swan's (2018) recommendations of utilizing body movement imitation, object imitation, verbal imitation, facial/affect reflection, and linguistic mapping to enhance therapist-child attunement with autistic children in CCPT. Sessions were conducted in play therapy rooms within the schools to maximize accessibility of services. The play therapy rooms were designed and structured based on Landreth's (2012) and Ray et al.'s (2022) recommendations, where toys and materials are selected to allow the child's

expressions, exploration, and understanding of self, environment, and relationships and to facilitate opportunities for developing self-control. Toys and materials included categories of real-life toys, acting-out aggressive-release toys, and toys for creative expression and emotional release (Landreth, 2012). To accommodate the developmental delays and sensory interests of participants, I selected toys that were easy to clean, and excluded toys containing small or sharp parts. Toys and materials were regularly checked for repair. Additionally, I reduced the amount of sand in the sandbox and installed a floor mat to facilitate cleaning and transitions between sessions. In both schools, play therapy spaces were marked off by curtains hanging from the ceiling. This allowed participants to engage in play with fewer external influences within a large empty classroom. Several participants expressed anxiety and hesitancy about entering a closed-off space at the beginning of play therapy. Therefore, curtains were opened to make the play therapy space more welcoming.

Play therapists who provided CCPT in the current study were three neurotypical doctoral-level counselors who completed at least three graduate level play-therapy courses, were trained in CCPT, and agreed to adhere to the CCPT treatment manual (Ray, 2011). One play therapist identified as an Asian, Hongkongese cisgender female, one identified as a bilingual (Spanish & English) Zapotec Latina, one identified as a White cisgender female. All play therapists had previously worked with children on the autism spectrum using CCPT and received supervision on their CCPT skills for autistic children. To ensure treatment integrity, play therapists received weekly 1-hour triadic supervision from a Registered Play Therapist Supervisor (RPT-S) experienced in using CCPT with autistic children and has conducted research on play therapy with autistic children. During supervision, play therapists reviewed video recordings of their play therapy sessions.

Protocol adherence was assessed through fidelity checks of video-recorded sessions utilizing the Child-Centered Play Therapy-Research Integrity Checklist (CCPT-RIC; Ray et al., 2017) with two randomly selected session recordings of each participant. Following the recommendation of Ray et al. (2017), protocol fidelity was set at 90% verbal response adherence or above according to the checklist. Fidelity checks were carried out by a trained auditor who is a licensed professional counselor, Registered Play Therapist (RPT), and doctoral counseling student experienced in using CCPT with autistic children. For the current study, protocol adherence was calculated at 99%, confirming that CCPT protocol was followed.

Data Analysis

To answer this study's research questions, I planned six repeated measures ANOVAs using the Total Score on the SEARS-T and five subscales scores on the ABC-2, namely Irritability, Social Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech, as the dependent variable for each analysis. Alpha was determined at .05, meaning statistical significance was determined by a *p*-value less than .05. Because G*Power indicated a necessary sample size of 24 participants, post power analysis was run on each ANOVA to address credible effects. After computing the repeated measures ANOVA analysis in SPSS, the output was examined to determine if there was a statistically significant difference across time of measurement. I conducted planned post hoc pairwise comparison analyses to determine the time of measurement for which significant changes occurred. Due to number of analyses conducted, the Bonferroni method was applied to account for Type 1 error.

To test for practical significance, I examined the value of multivariate partial eta squared (η_p^2) which assesses the amount of variance in the dependent variables explained or predicted by number of CCPT sessions (Tabachnick & Fidell, 2019). According to Cohen's (1988) guidelines,

eta squares of .01 were interpreted as small, .06 as moderate, and .14 as large. In addition, Cohen's *d* effect sizes for the dependent variable were calculated to determine the magnitude of the differences between the measurement points in post hoc pairwise comparison. Effect sizes of .2 represented a small effect, .5 a medium effect, and .8 a large effect (Cohen, 1988). Lastly, I evaluated clinical significance results by noting the change in clinical categories among participants between measurements.

Results

Social-Emotional Assets

The first repeated measures ANOVA assessed the impact of CCPT on participants' SEARS-T total scores at intake (time 1), after 8 sessions of CCPT (time 2), after 12 sessions of CCPT (time 3), and after 16 sessions of CCPT (time 4) as reported by teachers. Only 18 participants were included in these analyses due to one participant's SEARS-T score not meeting clinical cut-off at pre-test. The assumptions for level of measurement, independent observations, and normal distribution were all reasonably met. Table 1 lists the group means and standard deviations of scores.

Table 1

Mean Scores of SEARS-T Total Scores Across Time (N = 18)

Dependent Variable		<i>M</i>	<i>SD</i>
SEARS-T Total Score	Intake	29.06	4.123
	Session 8	32.22	7.117
	Session 12	30.89	4.689
	Session 16	31.44	5.283

Notes: M = Mean, SD = Standard Deviation

When examining the means of participants over time, observation indicates a rapid increase in the average SEARS-T total score from intake to session 8, a slight decrease from

session 8 to 12, and then a slight increase from session 12 to 16. Results indicate an increase in the average SEARS-T total score from intake to session 16, marking an overall improvement in participants' social-emotional assets from intake to session 16.

Results indicate a statistically significant effect for time, Wilks' $\lambda = .589$, $F(3, 15) = 3.483$, $p = .043$, $\eta_p^2 = .411$, observed power = .658. Thus, there was a statistically significant correlation between time and increase in the SEARS-T total scores, and 41.1% of the improvement could be explained by increased time in CCPT. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred. Statistically significant differences were found between time points 1 and 4 with a large effect ($p = .045$, $d = 1.61$).

Table 2

Mean Scores of SEARS-T Subscale Scores Across Time (N = 18)

SEARS-T Subscales		<i>M</i>	<i>SD</i>
Self-Regulation (SR)	Intake	31.89	2.193
	Session 8	34.00	4.485
	Session 12	32.06	2.043
	Session 16	32.78	2.819
Social Competence (SC)	Intake	32.83	5.238
	Session 8	35.94	7.215
	Session 12	35.56	6.501
	Session 16	36.50	6.483
Empathy (EM)	Intake	27.50	3.148
	Session 8	33.17	7.595
	Session 12	31.56	6.373
	Session 16	32.17	6.956
Responsibility (RE)	Intake	32.17	6.688
	Session 8	34.11	8.138
	Session 12	32.89	5.086
	Session 16	32.83	5.914

Notes: *M* = Mean, *SD* = Standard Deviation

Because a statistically significant result was obtained, post-hoc analyses of the SEARS-T subscale scores (Self-Regulation, Social Competence, Empathy, Responsibility) were conducted by separate repeated measures ANOVA to determine in which area(s) of social-emotional competencies difference in scores occurred (see Table 2).

Social Competence (SC) Subscale

A repeated measures ANOVA was conducted to assess the impact of CCPT on participants' Social Competence (SC) scores across time as reported by teachers. Results of repeated measures ANOVA indicates a statistically significant effect for time, Wilks' $\lambda = .520$, $F(3, 15) = 4.613$, $p = .018$, $\eta_p^2 = .480$, observed power = .789. Thus, there was a statistically significant correlation between time and teacher-reported improvement in participants' ability to maintain friendships with peers, engage in effective verbal communication, and feel comfortable around groups of peers, and 48% of the improvement could be explained by increased time in CCPT. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred. Statistically significant differences were found between time points 1 and 2 with a small to medium effect ($p = .043$, $d = .49$), 1 and 3 with a small to medium effect ($p = .053$, $d = .46$), 1 and 4 with a medium to large effect ($p = .012$, $d = .62$). In summary, participants demonstrated statistically significant improvement in social competence after session 8 and after session 12, with a small to medium effect, while a statistically significant improvement with a medium to large effect was demonstrated after 16 sessions of CCPT.

Empathy (EM) Subscale

A repeated measures ANOVA was conducted to assess the impact of CCPT on participants' Empathy (EM) scores across time as reported by teachers. Results of repeated

measures ANOVA indicates a statistically significant effect for time, Wilks' $\lambda = .547$, $F(3, 15) = 4.136$, $p = .025$, $\eta_p^2 = .453$, observed power = .740. Thus, there was a statistically significant correlation between time and teacher-reported improvement in participants' ability to empathize with others' situations and feelings, and 45.3% of the improvement could be explained by increased time in CCPT. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine when the difference in scores occurred. Statistically significant differences were found between time points 1 and 2 with a large effect ($p = .012$, $d = .98$), 1 and 3 with a large effect ($p = .031$, $d = .81$), 1 and 4 with a large effect ($p = .024$, $d = .87$). In summary, the improvement in empathy with large effect emerged after session 8 and lasted through session 12 to 16. Post hoc analyses of the SEARS-T subscale score revealed that the improvement in participants' social-emotional assets can be largely attributed to their improvement in empathy and social competence as there was no statistically significant change in Self-Regulation and Responsibility subscales.

Emotional and Behavioral Problems

Separate repeated measures ANOVAs were conducted for each dependent variable measured by the ABC-2 including Irritability, Social Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech, to evaluate the impact of CCPT across four points of measure. A reduction in scores on the ABC-2 subscales indicates improvement. Additionally, clinical significance is presented in terms of percentages of clinically at-risk scores vs. average scores. Only 17 participants were included in the analyses of the second research question due to two participants' ABC-2 subscale scores not meeting clinical cut-off at pre-intervention. Table 3 lists the group means, standard deviations, and ranges of scores. The ranges indicated a wide spread of data among participants at each data point, suggesting participants

may present different emotional and behavioral profiles. Mean scores are impacted by the variability between individual scores indicated by range values.

Table 3

Mean Scores of Teacher-Reported Dependent Variable Across Time (N = 17)

Dependent Variable		<i>M</i>	<i>SD</i>	Range
ABC-2 Irritability	Intake	19.12	9.096	4–35
	Session 8	16.88	11.357	2–36
	Session 12	14.82	8.748	3–28
	Session 16	15.47	10.290	0–31
ABC-2 Social Withdrawal	Intake	13.76	9.523	1–38
	Session 8	10.65	9.650	2–42
	Session 12	8.76	7.067	0–23
	Session 16	5.76	4.221	0–13
ABC-2 Stereotypic Behaviors	Intake	8.12	5.957	1–21
	Session 8	6.59	6.605	0–21
	Session 12	6.76	6.180	0–20
	Session 16	6.53	6.728	0–21
ABC-2 Hyperactivity/Noncompliance	Intake	26.71	9.054	10–39
	Session 8	23.18	10.484	5–37
	Session 12	22.06	9.852	5–35
	Session 16	20.65	9.791	4–37
ABC-2 Inappropriate Speech	Intake	5.41	3.675	0–11
	Session 8	4.47	3.538	0–11
	Session 12	4.76	3.073	0–9
	Session 16	5.00	2.872	0–10

Notes: *M* = Mean, *SD* = Standard Deviation

ABC-2 Irritability

Results of repeated measures ANOVA for Irritability indicated a statistically significant effect for time, Wilks' $\lambda = .542$, $F(3, 14) = 3.937$, $p = .031$, $\eta_p^2 = .458$, observed power = .71. Thus, there was a statistically significant correlation between time and decrease in the ABC-2 Irritability scores, and 45.8% of the improvement could be explained by increased time in CCPT. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred.

Statistically significant differences were found between time points 1 and 3, approaching medium effect ($p = .034$, $d = .48$). In summary, participants started to demonstrate statistically significant decrease in features of emotional and acting-out behavior after 12 sessions of CCPT.

ABC-2 Social Withdrawal

Results of repeated measures ANOVA for Social Withdrawal indicated a statistically significant effect for time, Wilks' $\lambda = .438$, $F(3, 14) = 5.996$, $p = .008$, $\eta_p^2 = .562$, observed power = .88. Thus, there was a statistically significant correlation between time and decrease in the ABC-2 Social Withdrawal scores, and 56.2% of the improvement could be explained by increased time in CCPT. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred. Statistically significant differences were found between time points 1 and 3 with a medium to large effect ($p = .003$, $d = .60$), and 1 and 4 with a large effect ($p = .007$, $d = 1.09$). In summary, participants demonstrated a statistically significant decrease in features of social impairment between intake and after 12 sessions of CCPT with medium to large effects; and a statistically significant improvement with a large effect was demonstrated after 16 sessions of CCPT.

ABC-2 Stereotypic Behaviors

For the Stereotypic Behaviors scale, there was a statistically insignificant effect for time, Wilks' $\lambda = .844$, $F(3, 14) = .860$, $p = .485$, $\eta_p^2 = .156$, observed power = .19. Thus, there was a statistically insignificant correlation between time and decrease in ABC-2 Stereotypic Behaviors. However, the partial eta squared indicated a large effect size as interpreted by Cohen's (1988) criteria. This may indicate that the study was underpowered, or the sample size was not sufficient to detect statistically significant differences, and that future exploration of the impact of play

therapy on Stereotypic Behaviors may be appropriate. Due to statistically insignificant results, no further analyses were conducted.

ABC-2 Hyperactivity/ Noncompliance

For Hyperactivity/Noncompliance scale, there was a statistically significant effect for time, Wilks' $\lambda = .493$, $F(3, 14) = 4.791$, $p = .017$, $\eta_p^2 = .507$, observed power = .80. Thus, there was a statistically significant correlation between time and decrease in the ABC-2 Hyperactivity/Noncompliance scores and 50.7% of the improvement could be explained by increased time in CCPT. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine when the difference in scores occurred. Statistically significant differences were found between time points 1 and 4 with a medium to large effect size ($p = .004$, $d = .64$). In summary, participants demonstrated a statistically significant decrease in aspects of hyperactivity and disruptive behavioral problems between intake and after 16 sessions of CCPT with medium to large effects.

ABC-2 Inappropriate Speech

For Inappropriate Speech scale, there was a statistically insignificant effect for time, Wilks' $\lambda = .783$, $F(3, 14) = 1.296$, $p = .315$, $\eta_p^2 = .217$, observed power = .27. Thus, there was a statistically insignificant correlation between time and decrease in ABC-2 Inappropriate Speech scores. However, the partial eta squared indicated a large effect size as interpreted by Cohen's (1988) criteria. This may indicate that the study was underpowered, or the sample size was not sufficient to detect statistically significant differences, and that future exploration of the impact of play therapy on Inappropriate Speech may be appropriate. Due to statistically insignificant results, no further analyses were conducted.

Table 4 provides a summary of the statistical results of all dependent variables in the current study. Statistically significant results indicate increased number of CCPT sessions predicted improvement in social-emotional assets, and decrease in emotional and behavioral concerns, such as irritability, social withdrawal, and hyperactivity, with large effects.

Table 4

Summary of statistical results over four points of measurement

Dependent Variables	P Value	Partial Eta Squared
SEARS-T ($n = 18$)		
Total	.043*	.411 ^L
Self-Regulation	.101	.331 ^L
Social Competence	.018*	.480 ^L
Empathy	.025*	.453 ^L
Responsibility	.508	.139 ^L
ABC-2 ($n = 17$)		
Irritability	.031*	.458 ^L
Social Withdrawal	.008*	.562 ^L
Stereotypic Behaviors	.485	.156 ^L
Hyperactivity/ Noncompliance	.017*	.507 ^L
Inappropriate Speech	.315	.217 ^L

Note. SEARS-T = Social-Emotional Assets and Resilience Scales-Teacher, ABC-2 = Aberrant Behavior Checklist-Second Edition. P values are based on statistically significant progress over the four points of measure. Partial Eta Squared values are based on variance accounted for across the four points of measure.

* Indicates statistical significance at $p < .05$.

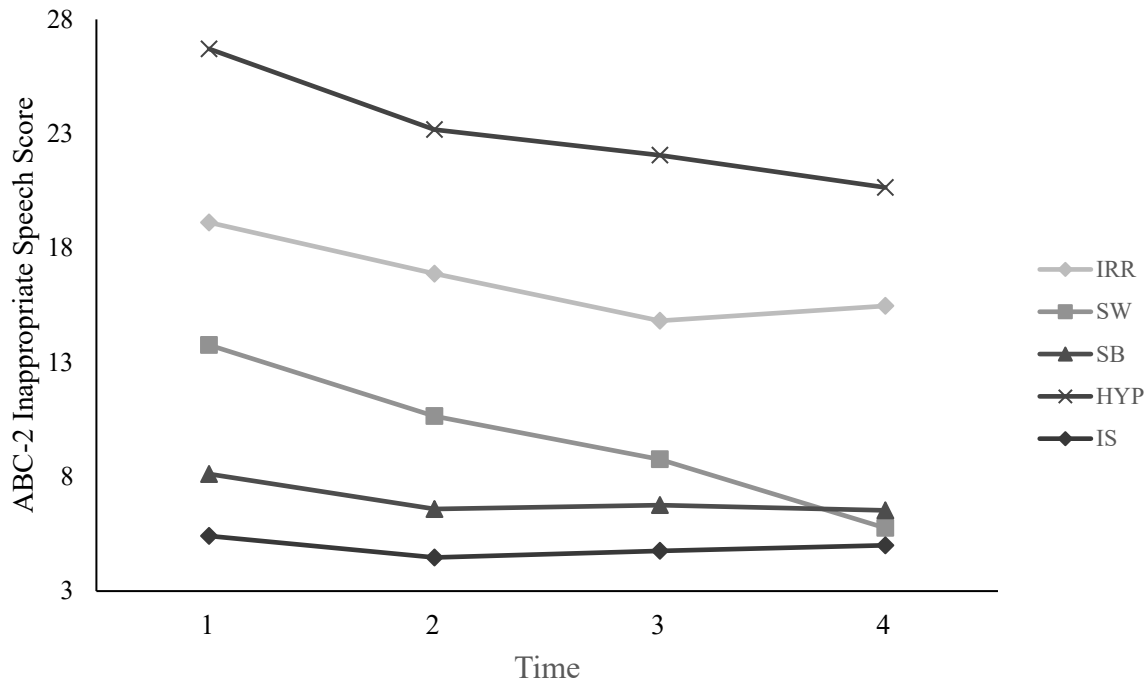
^L Reflects a large effect size according to Cohen's (1988) criteria.

Clinical Significance

To address the clinical significance of results, I explored the magnitude of differences in clinical impairment based on the ABC-2 due to its historical use as a measurement for autism spectrum problem symptoms. Results of the analyses indicated meaningful clinical significance.

Figure 2

Means over time on all ABC-2 Subscales



Note: IRR = Irritability, SW = Social Withdrawal, SB = Stereotypic Behaviors, HYP = Hyperactivity, IS = Inappropriate Speech.

As shown in Figure 2, participants' ABC-2 scores improved over time across all subscales. At intake, near half of the participants (47.1%) had a score within the ≥ 84 percentile range for ABC-2 Irritability subscale, indicating severe emotional and acting-out behaviors. During the final time measurement, 6 (35.3%) participants scored within the 84 percentile range on the ABC-2 Irritability scale, while near half (47.1%) scored below the 50 percentile range, indicating these children's scores were as well as or better than 50% of autistic children rated by the ABC-2. Of all 17 participants, 7 (41.2%) had a score within the ≥ 84 percentile range at intake for ABC-2 Social Withdrawal subscale, indicating severe social impairment. During the final time measurement, none of the participants scored within the 84 percentile range on the

ABC-2 Social Withdrawal scale, while 14 (82% of participants) scored below the 50 percentile range, indicating these children's social behavior matched or exceeded the social behaviors of 50% of autistic children rated by the ABC-2. This decrease in scores reflected an improvement in clinical severity of social impairment reported by teachers.

In addition, 8 (47.1%) participants had a score within the ≥ 84 percentile range at intake for ABC-2 Hyperactivity/ Noncompliance subscale, indicating severe attention deficits, hyperactivity, and disruptive behavioral problems. During the final time measurement, only 2(11%) of the participants scored within the 84 percentile range on the ABC-2 Hyperactivity/ Noncompliance subscale, while 8 (47.1% of participants) scored below the 50 percentile range, indicating these children's hyperactivity behaviors matched or exceeded the behavioral expectations of 50% of autistic children rated by the ABC-2. These results indicate clinically significant change in children's level of attention deficits, hyperactivity, and disruptive behavioral problems as reported by teachers.

Post-hoc Analyses

Noting that almost half of the participants also received behavioral intervention (ABA), I explored differences in scores between children who received both ABA and CCPT, in comparison to those who received CCPT without ABA. Table 5 summarizes the mean scores comparison between the two groups at pre-test and post-test for SEARS-T and ABC-2. No statistically significant differences between groups were identified at pre-test for all subscales. Mixed between-within subjects ANOVAs were conducted to assess the impact of CCPT with and without ABA on participants' scores across all dependent variables. Summary of analyses can be found in Table 6. Results indicated children who participated in CCPT without ABA

appeared to demonstrate better progress with meaningful effect sizes, when compared to children who participated in both CCPT and ABA.

Table 5

Mean Scores Comparison Across Two Time Periods for Children who participated in CCPT with and without ABA

Dependent Variables	Group	N	Pre-test		Post-test	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SEARS-T Total	CCPT + ABA	7	27.29	2.928	27.43	2.149
	CCPT	11	30.18	4.490	34.00	5.119
ABC-2 Irritability	CCPT + ABA	8	18.75	9.331	17.38	11.338
	CCPT	9	19.44	9.435	13.78	9.615
ABC-2 Social Withdrawal	CCPT + ABA	8	12.50	11.868	6.5	4.512
	CCPT	9	14.89	7.424	5.11	4.221
ABC-2 Stereotypic Behaviors	CCPT + ABA	8	8.25	5.825	7.13	5.939
	CCPT	9	8.00	6.423	6.00	7.681
ABC-2 Hyperactivity/Noncompliance	CCPT + ABA	8	26.88	6.813	22.88	7.990
	CCPT	9	26.56	11.103	18.67	11.247
ABC-2 Inappropriate Speech	CCPT + ABA	8	5.13	3.758	5.00	3.586
	CCPT	9	5.67	3.808	5.00	2.291

Note. SEARS-T = Social-Emotional Assets and Resilience Scales-Teacher, ABC-2 = Aberrant Behavior Checklist-Second Edition.

Table 6

Comparison of Children who participated in CCPT with and without ABA over Two Points of Measurement

Dependent Variables	Effect					
	Time		Group		Time*Group	
	<i>p</i>	η_p^2	<i>p</i>	η_p^2	<i>p</i>	η_p^2
SEARS-T (<i>n</i> =18)						
Total	.012*	.336 ^L	.022*	.287 ^L	.018*	.304 ^L
ABC-2 (<i>n</i> =17)						
Irritability	.062	.213 ^L	.752	.007 ^S	.238	.092 ^M
Social Withdrawal	.001*	.503 ^L	.872	.002 ^S	.366	.055 ^M
Stereotypic Behaviors	.126	.149 ^L	.824	.003 ^S	.657	.014 ^S
Hyperactivity/ Noncompliance	.002*	.491 ^L	.614	.017 ^S	.233	.094 ^M
Inappropriate Speech	.568	.022 ^S	.860	.002 ^S	.695	.011 ^S

Note. SEARS-T = Social-Emotional Assets and Resilience Scales-Teacher, ABC-2 = Aberrant Behavior Checklist-Second Edition. P values are based on statistically significant progress over the two points of measure. Partial Eta Squared values are based on variance accounted for across the two points of measure.

* Indicates statistical significance at $p < .05$.

^{S, M, L} Reflect small, medium, and large effects sizes according to Cohen's (1988) criteria.

Discussion

The current study is the first repeated-measures design study exploring the relationships between participation in CCPT and social, emotional, and behavioral problems of children on the autism spectrum. Statistical analyses revealed increased time participating in CCPT predicted statistically significant improvement in social-emotional competencies, and emotional and behavioral problems with large effects between .411 and .562 (η_p^2). This indicated that 41.1% to 56.2% of the improvement could be explained by increased time in CCPT. These results are consistent with previous studies (Blalock et al., 2019; Cheng & Ray, 2016; Ware Balch and Ray, 2015; Wilson & Ray, 2018), supporting CCPT's responsiveness to the development of social-emotional assets, empathy, and social competence in neurotypical and autistic children.

Moreover, the current study explored child participants' progress with emotional and behavioral problems. Statistical analyses revealed statistically significant improvements in irritability, social withdrawal, and hyperactivity/noncompliance, while large practical effects were indicated across all five subscales on the ABC-2. In line with previous findings (Kenny & Winick, 2000; Ray et al., 2007; Schottelkorb et al., 2020; Swan & Ray, 2014; Ware Balch & Ray, 2015; Wilson and Ray, 2018), the current study supported CCPT as a developmentally appropriate intervention for children on the autism spectrum with overall positive results.

Time Effects Across Course of Intervention

The present study used a repeated-measures design to identify points of improvement over time. For both empathy and social competence, teachers reported observed improvements in participants as early as after 8 sessions of CCPT, and these improvements persisted throughout the remaining CCPT intervention period. Regarding the impact of CCPT in irritability, social withdrawal, and hyperactivity/ noncompliance, teachers reported participants' social withdrawal began to improve after session 12, while irritability and hyperactivity/noncompliance improvement was reported after session 16. Previous CCPT research results suggested parents reported significant improvement after children had participated in at least 11 CCPT sessions (Ray, 2008). Comparatively, results of the present study suggested that autistic children may need longer time in intervention before teacher reported observable changes in emotional and behavioral problems.

As described above, teachers first reported improvements in empathy and social competence after session 8, then decreased social withdrawal after session 12, followed by a reduction in irritability and hyperactivity/ noncompliance after session 16. The sequence of changes occurring during the intervention appeared to support the CCPT theory that social,

emotional, and behavioral changes are seen as natural outcomes of a person's intrinsic growth when an individual develops an attitude of self-worth and diminishes the perception of external threats to self-concept (Landreth, 2012; Ray, 2011; Ray et al., 2012). In the case of the autistic child participants in the present study, it is possible that they first perceived feelings of worthiness and acceptance from the play therapist, then as their sense of self-acceptance increased, they were able to demonstrate empathy towards others and increased comfort in social situations, leading to reduction of social withdrawal. And given their sense of self-acceptance increased with participation in CCPT, they were able to demonstrate positive emotions and behaviors that are consistent with their positive self-concept, hence reduction of irritability and hyperactivity occurred.

Theoretical Considerations in Autism Intervention

Common in behavioral intervention (e.g., ABA) for autistic children, social behaviors and emotional expressions are conceptualized as discrete skills to be taught and trained using operant conditioning and external reinforcement (Fishbein et al., 2017; Ringdahl et al., 2009). In contrast, CCPT views social and emotional competencies as intrinsic self-enhancing behaviors resulting from an individual's perceived self-worth and self-acceptance within a relationship of empathy, unconditional positive regards, and genuineness (Axline, 1947; Landreth, 2012; Ray, 2011). In CCPT, the play therapist's intention and ability to convey empathic understanding to children is considered the most influential component of the therapeutic relationship, allowing children to continuously feel understood (Landreth, 2012). Throughout the process of CCPT, autistic children not only experience unwavering acceptance and understanding from the play therapist, but they also gain opportunities to expand their capacity to recognize and understand other's feelings when the play therapist provided genuine emotional expressions in the

relationship. In the current study, autistic child participants demonstrated substantial improvements in empathy following eight sessions of CCPT, suggesting they were receptive to the empathy shared by their play therapist. CCPT also allows autistic children to express their emotions and initiate social interactions within the relationship built with their play therapist. All three CCPT counselors who participated in this study reported experiencing moments of genuine reciprocity, whereby mutual connections were formed with each child participant, indicating the possibility and therapeutic benefits of focusing on the relationships with autistic children during intervention. Results of the current study affirmed CCPT, a relationally based intervention, may be useful in supporting autistic children in exploring and expanding their social and emotional competencies through child-directed play.

Therapeutic Outcomes with Adjunct Services

One unexpected finding, based on post-hoc analyses, was that participants who participated in CCPT showed better progress across all outcomes, compared to participants who participated in both ABA and CCPT. Behavioral interventions for autistic children are criticized for relying on reinforcement, modeling, and repetition without addressing emotional regulation, which Berkovits et al. (2017) argued was the underlying process of internalizing and externalizing behaviors for autistic children. Additionally, punitive procedures in behavioral interventions may lead to traumatic experiences and philosophical dissonance with positive behavior supports (Cumming et al., 2020; Sandoval-Norton et al., 2019; Schuck et al., 2022). Participants receiving both ABA and CCPT might experience philosophical dissonance, which could explain the difference in outcome between the ABA+CCPT and CCPT groups. In light of the limitations of the current research design, causal conclusions are not appropriate. Future

research using an experimental design could provide clinical insight into comparing therapeutic outcomes of ABA and CCPT in terms of social, emotional, and behavioral outcomes.

Social Validity of CCPT

Previous qualitative research among individuals on the autism spectrum highlighted autistic individuals' desires to gain a sense of autonomy and normalization in their interventions (Cumming et al., 2020). Hence, the current study explored the social validity of CCPT by collecting teachers', parents' and play therapists' subjective experiences during and after participation in CCPT. One teacher observed a participant exclaim, "that was awesome!" when returning to the classroom after play therapy. A teacher's aide reported to the play therapist that, "the students all love going to play therapy!"; another teacher reported, "the student gets excited to go with you!". At conclusion of the study, a non-speaking participant squeezed the play therapist's hand to express sadness during departure. Within play therapy sessions, multiple participants initiated physical contact with the play therapists and expressed desire to connect with the play therapists through child-directed nurturing play. The observations confirmed the social validity of CCPT, whereby participants demonstrated intrinsic motivation, appeared to feel accepted as who they are, and were drawn to the relationship with the play therapists.

Multicultural Considerations

The cultural and developmental diversity of participants was a strength in the current study, providing support for CCPT as a culturally and developmentally responsive intervention. Over 60% of participants were children of color identified by parents. The participants appeared representative of the school populations lending credibility to generalizability of findings among racial/ethnic minoritized child population. Moreover, of the 19 participants, parents reported 13 (68.4%) participants experienced moderate to severe impairment of functioning due to autism, 11

(57.9%) participants have co-occurring mild to severe intellectual disability; all participants presented with speech and language impairment, with 17(89.5%) experienced moderate to severe impairment. The sample characteristics of participants in the current study support the utilization of CCPT as a developmentally responsive intervention for autistic children across functionality, with varying social communication, cognitive, and language abilities. In addition, the sample consisted of 15 (78.9%) boys and 4 (21.1%) girls. The boy-to-girl ratio was 3.75 to 1, resembling the gender ratio of autism identification (3.8:1) according to latest research findings (CDC, 2023). Low number of female participants remained a limitation of the current study to understand the needs of autistic girls.

Clinical Implications

Although autistic children present high rates of emotional and behavioral difficulties that are not limited to the diagnostic features of autism, national data indicated underutilization of psychological intervention, particularly among communities of color and economically disadvantaged families (Angell et al., 2018; Monz et al., 2019). School-based CCPT may be a practical model for mental health counselors to increase accessibility and reduce the stigma and mistrust associated with mental health services for children on the autism spectrum. Bi-weekly 30-minute sessions appeared to benefit autistic children in establishing rapport with play therapist. Thus, clinicians in various mental health settings may consider adopting this intensive model when using CCPT for autistic children.

Results of fidelity checks using the CCPT-RIC (Ray et al., 2017) indicated 99% of the time, play therapists used verbal CCPT responses. Play therapist's high adherence to CCPT protocol indicated they did not modify their verbal approach during intervention. Given the holistic improvement of participants, the current study appeared to support the idea that CCPT

protocol alone, without additional techniques or modification, could yield positive outcomes.

Although, it is note-worthy that CCPT play therapists embody attunement in their practice and often utilize both non-verbal and verbal responses to establish rapport with children. Based on the current study, play therapists reported three major considerations when implementing CCPT protocol with children on the autism spectrum, including: a) clinical experience and supervision, b) materials and play therapy room set up, and c) consistency of CCPT skills.

Clinical Experience and Supervision

All three play therapists were doctoral-level counselors who completed at least three graduate courses in play therapy and had acquired clinical experience working with both neurotypical and autistic children in CCPT. Play therapists reported prior clinical experiences in CCPT helped them solidify case conceptualization when working with autistic children. Additionally, weekly supervision with a supervisor familiar with autism populations enhanced skills application, especially in challenging situations such as issues surrounding physical boundaries and touch, and therapeutic limits regarding aggressive behavior.

Materials and Play Therapy Room Set Up

In the present study, play therapists observed that autistic children were drawn to different toys and materials based on their personal interests, sensory and relational needs. In the play therapy room, participants naturally explored more items as their sense of safety and comfort increased. To allow autistic children to choose their own direction of play, it appeared important to include CCPT toys and materials of all traditional categories, such as real-life toys, acting-out aggressive-release toys, and toys for creative expression and emotional release (Landreth, 2012). Play therapists noted the importance of including nurturing and healing items to allow autistic children's exploration of their relational capacity. Play therapists also reported

adjusting the quantity or size of materials to ensure safety and accommodate motor dexterity and sensory stimulation levels, which allowed autistic children to express themselves fully. For example, play therapists reduced the amount of sand in the sandbox to prevent overstimulation but allow opportunities for autistic children to engage in sensory exploration and exercise self-control. Moreover, play therapists may consider picking neutral colors for the play therapy room to create an inviting therapeutic space for autistic children.

Consistency of CCPT Skills

Play therapists reported developmental considerations when working with autistic children. First, play therapists reported body and sound imitations helped them maintain interests and psychological contact when the autistic child was engaged in self-absorbed play. Across cognitive developmental levels, play therapists noted children on the autism spectrum may require repetition of Landreth's (2012) limit-setting model more than neurotypical children, when navigating the personal and structural boundaries of the play therapy relationship. Particularly, by emphasizing "acknowledgment of feelings and desires" and "communication of limitations", play therapists facilitate autistic children's process and understanding of both their own needs and the meaning of the limitation. The Choice Giving method (Ray, 2011) is another way play therapists used to facilitate autistic children's self-enhancing decisions by communicating trust in their ability to make choices.

Limitations and Opportunities for Future Research

The current study's repeated-measures design improved credibility and rigor, but several limitations affected interpretation of the results. The present study adopted a non-experimental design, the lack of randomization and control group limits the ability to account for extraneous or confounding variables. Readers should interpret these results with caution due to possible carry-

over effects from adjunct interventions that were not controlled for in this study. Secondly, I utilized convenience sampling in Title-1 schools, limiting the generalization of results to all children on the autism spectrum. As a result of its small sample size ($N = 19$), this study also suffered from generalization limitations similar to previous CCPT studies among autistic children.

The current study was the first repeated measures study exploring the impact of CCPT on autistic children specifically focusing on emotional and behavioral outcomes, providing preliminary support for CCPT as a social-relational and psychological intervention that matched CDC's (2022b) guidelines. However, it is imperative to conduct additional research on this population to replicate the results. To strengthen the empirical evidence supporting CCPT's efficacy as an autism intervention, future researchers may use an experimental design. A randomized controlled trial that compares CCPT with a behavioral intervention may help researchers understand the difference between interventions on social-emotional outcomes. Future studies may also include multiple reporters to measure changes among participants in different settings. In light of the close correlation between cognitive ability, social-communication skills, and emotional and behavioral problems, researchers and clinicians may be able to better understand the correlation between clinical characteristics before and after CCPT intervention using multivariate statistics. Additionally, larger studies may help generalize research findings in future studies. Follow-up studies and longitudinal studies may demonstrate CCPT's long-term effects on emotional and behavioral outcomes for autistic children.

Conclusion

The current study contributes to existing CCPT research supporting its cultural and developmental appropriateness as a holistic social-relational intervention for autistic children

with emotional and behavioral problems, across cognitive, speech, and language abilities. The study also provides insight into the social validity and utility of this relationally based intervention. Play therapists reported considerations of clinical experience and supervision, materials and play therapy room set up, as well as consistency in CCPT skills. Through these considerations, the CCPT protocol may be enhanced in its theoretical consistency while accommodating the cultural and developmental needs of autistic children. The current study yielded promising results that pave the way for future research on the application of CCPT with children on the autism spectrum.

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APPENDIX A
EXTENDED LITERATURE REVIEW

The following section incorporates a review of relevant literature and research pertaining to understanding the autism spectrum and using Child-Centered Play Therapy (CCPT) with children on the autism spectrum. The literature review will be sectioned in this order: (a) history of autism, (b) diagnosis, etiology, and identification rate of autism, (c) multicultural factors associated with autism, (d) co-occurring emotional and behavioral problems in children on the autism spectrum, (e) autism interventions, (f) theory, practice, and research of CCPT, (g) application and research on CCPT with children on the autism spectrum, and (h) conclusion.

History of Autism

The term “Autism” was first coined by Swiss psychiatrist Eugen Bleuler to describe the condition of schizophrenia within which the individual loses contact with reality (Bleuler, 1911/1950). Until the early 1940s, Austrian American child psychiatrist Leo Kanner (1943, 1944) and Austrian physician Hans Asperger (1944/1991) independently reported cases of children who presented with impairment in social relationships, language development, and behaviors. Kanner and Asperger reported children with autism present with behaviors similar to symptoms of schizophrenia, such as obsessiveness, stereotypy, and echolalia. However, both scholars differentiated autism from schizophrenia due to the onset of autistic behaviors at birth and individuals’ profound difficulties of social integration.

Kanner (1943) provided a systematic description of 11 children in his published case records, eight boys and three girls, who presented with "inborn autistic disturbances of affective contact" (p. 250). Among the characteristics observed by parents, Kanner noted a lack of communicative use of language, a strong desire for sameness, limited interests in activities, and stereotypic and repetitive patterns of behavior, such as hand-flapping and spinning. Kanner (1943) therefore summarized two pathological features of autistic disturbance of affective

contact: (a) “innate inability to form the usual, biologically provided affective contact with people” (p. 245), and (b) “anxiously obsessive desire for the maintenance of sameness” (p. 245). Kanner documented a similar clinical observation in a cohort of 20 children, leading him to coin the diagnostic term “early infantile autism” (Kanner, 1944). As a result of his observations, Kanner reiterated that infantile autism was an innate condition, highlighting genetic factors may exist. In 1971, Kanner published a follow-up study with 11 children originally reported in 1943 as having “autistic disturbances of affective contact” (Kanner, 1971). Kanner was able to obtain data from 9 out of the 11 children and reported their present status. According to Kanner (1971), these children retained the two core autistic features of aloneness and stereotyped patterns (p. 143), but there are individual differences in these characteristics. The participants were also heterogeneous in terms of intellectual ability and developmental trajectory, including occupational suitability and social adjustment (Kanner, 1971).

In the same year that Kanner (1944) introduced early infantile autism in the U.S., Asperger (1944) published a thesis titled ‘*Autistic psychopathy*’ in *Childhood* in Vienna, which documented case studies of four children he believed suffered from inherited personality disorders. Asperger (1944) observed that these children exhibited poor nonverbal communication skills, unusual social behaviors, and narrow interests, despite their normal intelligence. They were socially odd, although they had appropriate grammar and vocabulary skills (Asperger, 1944). According to Asperger (1944), autistic children possess positive characteristics, such as a creative thinking style and intellectual abilities. He also hypothesized that autism stems from an inability to learn conventionally. Asperger’s (1944) statement “we can show that despite abnormality human beings can fulfill their social role within the community, especially if they

find understanding, love and guidance” (p. 37) showed his intentions to advocate for special education and treatment to help autistic individuals with their unique difficulties.

Frith's (1992) edited book provides the first coherent account of Asperger syndrome as a distinct variant of autism. Among other autism researchers, Frith held the position there is a need to differentiate various forms of autism, with one of the variations named Asperger's syndrome. Frith discerned the developmental diversity of autism due to the variability of behavioral manifestations depending on ages, intellectual abilities, and language skills.

In summary, Kanner (1943, 1944, 1971) and Asperger (1944) were the first scholars to document cases of autism in psychiatry. As both noted, the main features of autism included extreme challenges in social communication, narrow interests, and repetitive behaviors; however, their case records revealed a wide range of intellectual abilities, developmental trajectory, and social adjustment among autistic individuals. Their work provided a foundation for understanding autism, which has been further developed by other autism researchers (Firth, 1992; Harris, 2018). In the following, I will discuss the development of autism conceptualization overtime, including the diagnostic criteria, etiology, and identification rate.

Diagnosis, Etiology, and Identification Rate of Autism

Diagnosis and Conceptualization of Autism

Harris (2018) asserted that Kanner's (1943, 1944, 1971) work laid the foundation for autism understanding to this day, even though several changes have occurred in autism conceptualization since Kanner's first publication. These shifts were primarily the result of the work of several autism researchers, including Kolvin (1971), Asperger (1991), and Wing (1981), as well as the publication and revisions of the *Diagnostic and Statistical Manual of Mental*

Disorders (DSM) by the American Psychiatric Association (APA) in 1980, 1987, 1994, 2000, 2013, and 2022 (Harris, 2018).

Initially, when Kanner published his studies in the 1940s, there was uncertainty in the psychiatry field regarding how the children Kanner described should be categorized. Due to the belief that these children were suffering from schizophrenia, autism was classified as infantile psychosis under the diagnostic umbrella of childhood schizophrenia in the DSM-II (APA, 1968). Kolvin's (1971) research provided evidence to differentiate autism from schizophrenia, which led to a new category in the third edition of DSM (DSM-III; APA, 1980), *infantile autism*. Infantile autism was classified as a childhood-onset disorder termed pervasive developmental disorder (PDD), along with residual infantile autism, childhood onset pervasive developmental disorder (COPDD), and residual COPDD. Diagnostic criteria for infantile autism included: a) having an onset before 30 months of age; b) pervasive lack of responsiveness to others; c) gross deficits in language development; d) (if speech is present) peculiar speech patterns such as immediate and delayed echolalia, metaphorical language, pronominal reversal; e) unusual responses to the environment, such as resistance to change, peculiar interest in or attachments to animated or inanimate objects; and f) the absence of hallucinations and delusions as present in schizophrenia (APA, 1980). The publication of the DSM-III marked a significant milestone in autism diagnosis to officially distinguish it from schizophrenia.

Harris (2018) noted the DSM-III criteria were too restrictive because they were more appropriate for young children with more severe impairments. In 1987, when the DSM-III was revised, APA incorporated updates to the autism diagnostic criteria and a change in name (DSM-III-R; APA, 1987). Updates included considering an individual's age and development when identifying symptoms. Infantile autism was replaced with the term autism disorder, which

allowed the diagnoses of autism in older children. The COPDD category was dropped; and atypical PDD was replaced by PDD-not otherwise specified (PDD-NOS). A total of 16 diagnostic criteria of autism disorder were examined across three domains: qualitative impairment in reciprocal social interaction, qualitative impairment in verbal and nonverbal communication and in imaginative activity, and markedly restricted repertoire of activities and interests. For a diagnosis, eight of the 16 criteria had to be met.

World Health Organization's 10th revision of the International Classification of Diseases (ICD-10; WHO, 1993) contributed to further changes in the DSM for autism diagnosis based on extensive research. In accordance with the ICD-10 Classification of Mental and Behavioural Disorders (WHO, 1993), the DSM-IV (APA, 1994) and DSM-IV Text Revision (DSM-IV-TR; APA, 2000) classified pervasive developmental disorders (PDD) into categories including autistic disorder, Asperger's disorder, pervasive developmental disorder – not otherwise specified (including atypical autism) (PDD-NOS), Rett's disorder, and childhood disintegrative disorder. The terms Asperger's syndrome and Asperger's disorder were used in ICD-10 and DSM-IV, respectively, to describe individuals who have normal cognitive functions, age-appropriate self-help skills, and adaptive abilities but have impairments in social communication. Between ICD-10 and DSM-IV/ DSM-IV-TR, there is one notable difference: ICD-10 did not require social deficits for all PDD diagnoses, while the DSM-IV PDD diagnosis encompassed autistic features in all categories of PDD (Harris, 2018).

In the DSM-5 (APA, 2013), the name autism spectrum disorder (ASD) was expanded to consolidate the previous categories of autistic related neurodevelopment disorders. In addition, a new diagnosis of social (pragmatic) communication disorder was introduced to identify individuals with persistent deficits in social communication and social interaction without

restricted, repetitive patterns of behavior. For an ASD diagnosis, there are two primary diagnostic markers: persistent deficits in social communication and interaction, and restricted or repetitive behaviors, interests, or activities. Impairments to social communication include social reciprocity, nonverbal social behaviors, and the establishment and understanding of social relationships. Among the characteristics of restrictive and repetitive behaviors are stereotypes or repetitive motor movements or speech, insistence on sameness or excessive adherence to routines, highly restricted and fixated interests, and hyper- or hyporeactivity to sensory input. The diagnostic criteria also require symptoms to be present during early development and to limit or impair everyday functioning (APA, 2013, p. 50). DSM-5 specifies the severity of ASD by indicating how much support an individual may require. Co-occurring conditions, such as intellectual impairment or attention deficit hyperactivity disorder, are also included in DSM-5 for ASD diagnosis, whereas this overlap was not allowed in DSM-IV (APA, 2013). Additionally, in recognition of the physiological and psychological diversity within Rett syndrome, as well as research showing that not every individual with Rett syndrome meets autism criteria (APA, 2013), Rett syndrome was removed as a mental health diagnosis from the DSM-5.

With the latest Text Revision of the DSM-5 (DSM-5 TR; APA, 2022) APA modified wordings in the ASD diagnostic criteria and description without changing the overall diagnostic classification. Table A.1 shows the full diagnostic criteria for ASD. In criterion A, the phrase “as manifested by the following” (APA, 2013, p. 50) was revised to “as manifested by all of the following” (APA, 2022, p. 56) to increase clarity regarding the manifestation of social and communication deficits. Moreover, according to DSM-5 (APA, 2013), clinicians may specify if a person’s autism is “associated with another neurodevelopmental, mental or behavioral disorder”. In DSM-5 TR, the phrase "mental or behavioral disorder" was replaced by "mental or behavioral

problem”, indicating APA (2022) no longer requires ASD specifiers to be diagnosable conditions. Clinicians may identify co-occurring problems such as irritability, sleep problems, self-injurious behaviors, or developmental regression that are a focus of treatment or contribute to the functional formulation (APA, 2022, p. 60). Consistent with DSM-5, DSM-5 TR utilizes three specifiers to indicate the severity of ASD. These include “requiring very substantial support,” “requiring substantial support,” and “requiring support” (APA, 2022, p. 58). Table A.2 indicates the three levels of support required by autistic individuals specified by their impairment in social communications and restrictive, repetitive, behaviors respectively.

Table A.1

DSM-5 TR Diagnostic Criteria for Autism Spectrum Disorder

Diagnostic Criteria
<p>A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by all of the following, currently or by history (examples are illustrative, not exhaustive; see text):</p> <ol style="list-style-type: none"> 1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions. 2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication. 3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social context; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers. <p>B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):</p> <ol style="list-style-type: none"> 1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases). 2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes,

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- difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).
3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
 4. Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).
- C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).
- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
- E. These disturbances are not better explained by intellectual developmental disorder (intellectual disability) or global developmental delay. Intellectual developmental disorder and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual developmental disorder, social communication should be below that expected for general developmental level.
- Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.
- Specify* current severity based on social communication impairments and restricted, repetitive patterns of behavior (see Table 2 [herein, Table A.2]):
- Requiring very substantial support
 - Requiring substantial support
 - Requiring support
- Specify* if:
- With or without accompanying intellectual impairment
 - With or without accompanying language impairment
- Specify* if:
- Associated with a known genetic or other medical condition or environmental factor (Coding note: Use additional code to identify the associated genetic or medical condition.)
 - Associated with a neurodevelopmental, mental, or behavioral problem
- Specify* if:
- With catatonia (refer to the criteria for catatonia associated with another mental disorder, p.135, for definition) (Coding note: Use additional code F06.1 catatonia associated with autism spectrum disorder to indicate the presence of the comorbid catatonia.)
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Note. Reproduced from APA (2022), p.56-57.

Table A.2

DSM-5 TR Severity Levels for Autism Spectrum Disorder (Examples of Level of Support Needs)

Severity level	Social communication	Restricted, repetitive behaviors
Level 3 “Requiring very substantial support”	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches.	Inflexibility of behavior, extreme, difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action.
Level 2 “Requiring substantial support”	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences whose interaction is limited to narrow special interests, and who has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.
Level 1 “Requiring support”	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful responses to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to-and-fro conversation with others fails, and who attempts to make friends are odd and typically unsuccessful.	Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

Note. Reproduced from APA (2022), p.58.

Harris (2018) maintained that although modifications and advances existed over the years, current diagnostic criteria for autism are consistent with those described in Kanner's (1943, 1944) early report. Overall, the diagnostic conceptualization moved toward recognizing autism as a neurodevelopmental condition that consists on a spectrum. The inclusion of specifiers for an autism diagnosis in the recent revision of DSM-5 (APA, 2013) and DSM-5 TR (APA, 2022) also indicated the clinical importance of addressing complexity of challenges experienced by individuals diagnosed with ASD.

Heterogeneity among Autistic Individuals

APA (2022) recognized autism as a "spectrum" disorder by stating individuals with autism may experience a wide range of core autistic symptoms in accordance with their developmental level and chronological age. Considering the changing behavior profile of people with autism as they age, and the presence of co-occurring disorders/problems, the clinical profile of autism becomes more complex.

Although core autism diagnostic features are evident at an early age, individuals may be able to mask their social, linguistic, or behavioral challenges following interventions, compensation, or current support. When compared with those with accompanying cognitive or language impairments, individuals who do not exhibit these impairments may exhibit subtle symptoms of social interaction deficits and repetitive behaviors. Additionally, individuals may demonstrate more subtle deficits in interpersonal communication if they have better overall communication skills (e.g., fluent verbal communication and no intellectual impairments). In the case of restrictive and repetitive behaviors, deficiencies may be less apparent if the interests are more in line with age-typical norms (such as ancient Egypt or trains compared to wiggling a string) (APA, 2022).

Even though some children on the autism spectrum have exceptional abilities and gifted talents, ASD is frequently associated with intellectual impairment and structural language disorder (APA, 2022). According to the Autism and Developmental Disabilities Monitoring (ADDM, 2022), one-third of children diagnosed with ASD who had IQ scores on record also had intellectual disabilities. Other studies showed that between 50% and 70% of children diagnosed with ASD are reported to also have an intellectual disability (ID) (APA, 2022; Wiggins et al., 2022). In addition to the wide range of autistic characteristics, the variability of ID prevalence may be linked to the challenges of accurately assessing the intelligence of autistic children. Autism children may have difficulty completing intelligence tests because of lacking the skills to interact, imitate, follow instructions, and respond verbally to answers (Exkorn, 2005). Matson and Shoemaker (2009) noted an increase in co-occurring ID and ASD in the literature and attributed this trend to the expansion of ASD diagnostic criteria. There was also a discrepancy in prevalence between different samples, such as children versus adults, in patients versus outpatients (Matson & Shoemaker, 2009). ID reporting without empirical measurement, and the inconsistent use of assessment instrument in existing studies further contributed to discrepancies in the prevalence claimed (Edelson, 2006; Matson & Shoemaker, 2009).

Moreover, Harris (2018) proposed that, considering the heterogeneity of ASD, the current DSM-5 classification may be regarded as a “transitional classification” (p. 10) that further modifications based on research are necessary. Despite the advances in diagnostic systems that recognize ASD severity on a spectrum rather than a continuum, there is a lack of clarity regarding the clinical profile and developmental trajectory of subtypes of autism, which is essential for understanding the complexity of autism (Harris, 2018). Most recently, Wiggins and colleagues (2022) conducted a study to define behavioral and developmental features that

contribute to homogeneity and heterogeneity of ASD in two cohorts of regionally diverse pre-school children (ages 2 to 5 years old). The participants consisted of 1,480 children characterized with ASD, and 594 children with a diagnosis of non-ASD developmental delay or disorder (DD) serving as the comparison group. Results of multiple correspondence analysis (MCA) indicated among both groups of children, an estimated 49%–65% variance can be explained by factors associated with dysregulation (i.e., anxiety/depression, aggression, sleep problems, and emotional reactivity) and an additional 15%–30% variance can be explained by factors associated with developmental abilities (e.g., expressive and receptive language skills). These findings suggested that subgroups of both autistic children and children of other developmental delay or disorders are most accurately defined by their levels of dysregulation, followed by their developmental abilities. Wiggins' team also found that intellectual disability (ID) was statistically more prevalent in the autism spectrum disorder group, and sensory dysregulation was the unique clinical feature that defined homogeneity among these children. Wiggins et al. (2022) concluded that dysregulation and developmental abilities are associated with clinical characteristics that can reduce the functioning of children with ASD and other DD. These features should therefore be assessed and monitored in clinical settings. Considering the findings that sensory dysfunction serves as a unique predictor of ASD, Wiggins et al. proposed the addition of sensory dysfunction to ASD diagnostic criteria.

Etiology

Over the past century, the concept of autism has shifted from believing it as a disorder caused by parents' maltreatment to understanding it as a neurodevelopmental and genetic condition (Fishbein et al., 2017; Harris, 2018). Harris (2018) proposed that Kanner's (1943, 1944) assertion of the heritability of autism paved the way for genetic research in the modern

era. For instance, research has linked autism to biological and neurological differences in the brain. Even though no single gene has been directly linked to autism, researchers are examining factors that may contribute to the development of autism using advanced brain-imaging technology (NAC, 2015).

Genetic and Physiological Factors

Positron Emission Tomography (PET) and Magnetic Resonance Imaging (MRA) scans can reveal abnormalities in the cerebellum's structure (NAC, 2015). The IBIS Network and the Autism Brain Imaging Data Exchange (ABIDE) are major resources (Harris, 2018). Findings from genetic and epidemiological research suggested that autism results from the combination of genetic and environmental factors (Chaste & Leboyer, 2012).

Environmental Factors

Researchers and scientists continue to study external factors that may be associated with an increased likelihood of developing neurodevelopmental disorders. These factors include advanced parental age, extreme prematurity, or fetal exposures to certain drugs or teratogens like valproic acid (APA, 2022; NIMH, 2022). According to Modabbernia et al.'s (2017) meta-analyses, advanced parental age is correlated with an increased likelihood of autism. Moreover, the researchers identified a strong correlation between autism and birth complications associated with trauma, ischemia, or hypoxia, whereas other pregnancy-related factors such as maternal obesity, maternal diabetes, and caesarian section indicated weaker associations with autism. The researchers found inconclusive results regarding the detrimental effects of folic acid deficiency and omega-3 deficiency; however, it appeared that vitamin D deficiency was widespread among the samples of the studies. The researchers cautioned that studies on toxic elements have been largely limited by their design. However, sufficient evidence exists to support the association

between exposure to some heavy metals (inorganic mercury and lead) and autism. In contrast to popular belief, environmental factors such as vaccination, maternal smoking, thimerosal exposure, and assisted reproductive technologies are not associated with autism development (Modabbernia et al., 2017). Modabbernia and colleagues reported major methodological limitations exist in current research in environmental risk factor. Therefore, future research is needed to increase the understanding of the interaction effects between genetic and environmental factors contributing to one's neurological development.

Identification Rate

APA (2022) estimated the frequency of autism diagnosis among the U.S. population to be 1% – 2%. This estimation is consistent with the CDC data that, approximately one in 44 8-year-old children (2.27%) in the United States are diagnosed with autism. The APA (2022) found that after accounting for socioeconomic factors, autism identification was lower for African American (1.1%) and Latine children (0.8%) than for White children (1.3%). These data revealed potential misdiagnosis, delayed diagnosis, or underdiagnosis among minoritized ethnic and racial groups, which contributed to autism identification disparities. Furthermore, recent research indicates that the male-to-female ratio among children diagnosed with ASD is close to 3:1 (APA, 2022; Loomes et al. 2017). These findings raise concerns about the under-recognition of autism among women and girls.

This section presents an overview of major developments in autism diagnostic categorization since autism was first discussed in the literature. As a result of advances in psychiatric, psychological, behavioral, genetic, and epidemiological research, autism has become widely recognized as a spectrum of neurodevelopmental conditions characterized by persistent challenges with social and communication skills, restrictive or repetitive behaviors, and sensory

dysfunction. The concept of autism spectrum entails the heterogeneity of autism populations based on their core autism diagnostic features, cognitive functioning, language development, and co-occurring behavioral, developmental, medical, and psychiatric conditions. In addition, there is considerable variability and diversity within autistic communities at individual and systemic levels, which necessitates a discussion of multicultural factors and the need for advocacy. I will explore multicultural issues and introduce the neurodiversity perspective in the next section.

Multicultural Factors Associated with Autism

Historical Oppression and Marginalization

Historically, individuals with intellectual disabilities and mental disorders are marginalized and oppressed according to eugenic beliefs. Eugenics refers to the practice or advocacy of controlled selective breeding of human populations (as by sterilization) to improve the population's genetic composition (Merriam-Webster, n.d.). A vivid example is that in 1927, the US Supreme Court legalized sterilization of the unfit, including the intellectually disabled in *Buck v Bell* (*Buck v. Bell*, 274 US). As of 2019, *Buck v. Bell* has not been overturned formally by the Supreme Court.

The controversy of involuntary euthanasia for children with severe intellectual disabilities further denoted children's vulnerability if they were deemed "defective" and unworthy of living by society. Harris (2018) documented a debate between Leo Kanner and leading neurologist, Foster Kennedy, in 1942. Kennedy supported a "mercy death" for children with severe intellectual disabilities if their parents gave permission (Kennedy, 1942). The accompanying editorial, titled *Euthanasia*, discussed how psychiatrists could help parents resolve a "morbid attachment" to severely intellectually disabled children, as well as possibly allowing their children to die of mercy. Kanner (1942), on the other hand, challenged the indifference towards

people who are considered “intellectually inadequate”; he asserted “Psychiatry is, and should be forever, a science dunked in the milk of human kindnesses” (p.21).

Kanner (1971) noted the deterioration of four autistic children living in institutional care in his follow-up study discussed previously. As a result, Kanner (1971) underscored the need for humane interventions for autistic children. He commented (p. 144):

One cannot help but gain the impression that State Hospital admission was tantamount to a life sentence, with evanescence of the astounding facts of rote memory, abandonment of the earlier pathological yet active struggle for the maintenance of sameness, and loss of the interest in objects added to the basically poor relation to people—in other words, a total retreat to near-nothingness. These children were entered in institutions in which they were herded together with severely retarded coevals or kept in places in which they were housed with psychotic adults; two were eventually transferred from the former to the latter because of their advancing age. One superintendent was realistic enough to state outright that he was accepting the patient "for custodial care." Let it be said, though, that recently a few, very few, State Hospitals have managed to open separate children's units with properly trained and treatment-oriented personnel.

Although autism has been understood better over past few decades, and autistic children can now be offered alternate interventions to institutionalization, the clinical categorization of autism as a disorder still carries stigma (Harris, 2018; Schuck et al., 2022; Singer, 2017). The medical model views diagnoses such as autism in terms of related deficits or impairments; by this nature, clinical treatments are developed to address impairments without necessarily taking into consideration what the individual requires to function and thrive (Schuck et al., 2022). Furthermore, public biases, such as viewing autism as bad traits, or the misconception that autistic people are eccentrics and social outcasts, contribute to further alienation and stigmatization of the condition (Botha et al., 2020; Singer, 2017).

Disparities in Identification and Service Utilization

ADDM (2022) consistently reported disparities in estimated identification and age of earliest evaluation. Autism can be identified as early as two years old. However, parents often

need to wait for an average of 3 years between their initial concerns and their child's diagnosis (Oswald et al., 2017). A child with autism is diagnosed at an average age of four to seven years (Baio et al., 2018), with children from low-income families, ethnic and racial minorities, and rural areas experiencing longer delays (McNally Keehn et al., 2020). Studies have shown that the likelihood of autism does not differ across racial and ethnic groups, but White children and those of higher socioeconomic status are more likely to receive an autism diagnosis sooner than Black, Latinx, and Asian children, as well as children from low-income families (Mandell et al., 2002; Wiggins et al., 2020). In some autism surveillance sites, Hispanic children were less likely to be diagnosed with autism than White or Black children (ADDM, 2022). Due to this disparity, children of color and low-income families are less likely to take advantage of early autism-specific intervention services during critical developmental windows (Aylward et al., 2021).

Individual, family, and cultural-related factors

Researchers suggested sociodemographic factors, educational factors, and language and cultural barriers contributed to a later identification of autism among children of color (Aylward et al., 2021; Tek & Landa, 2012). Due to financial barriers, parents of color may lack access to information, education, or quality health care including access to referrals and specialists. This is especially true in neighborhoods with limited community resources (Constantino et al., 2020). On the contrary, parents with higher health literacy are more likely to recognize atypical child development and advocate for care despite discrimination or other systemic barriers (Magaña et al., 2013; Tek & Landa, 2012).

Other barriers to early autism identification for children of color included discrimination, fear of stigma, perceived challenges in communicating their concerns to providers, and unfamiliarity regarding the diagnostic process and services (Angell et al., 2018; Donohue et al.,

2019; Zuckerman et al., 2017). Distrust of providers and systems of care, and discouragement from their family or community are common causes of disparities in service utilization (Angell et al., 2018). Compared with White parents of autistic children, Black parents reported significantly lower autism concerns and fewer social, restricted, and repetitive behavioral concerns. The findings may be explained by lower levels of autism knowledge or different perceptions of whether specific behaviors warrant concern (Donohue et al., 2019). Moreover, a group of Latinx families reported experiencing barriers to accessing care due to insufficient awareness of autism and its diagnostic features as well as increased stress during the diagnostic process (Zuckerman et al., 2017). In this study, over 85% of Latinx families with limited English proficiency indicated that they had no knowledge of autism. Zuckerman et al. (2017) proposed the low level of awareness of autism diagnostic features may be due to systemic barriers to developmental education for parents of color, as well as an absence of research examining the heterogeneity of symptoms across diverse populations. Meanwhile, limited research exists regarding Asian/Pacific Islander children, American Indian/Alaska Native children, as well as children belonging to smaller racial, ethnic, or cultural groups (Angell et al., 2018). This suggests that more research is necessary.

Other Systemic Factors

Furthermore, researchers suggested that in addition to individual and family factors, clinician behaviors, such as interpretations and expectations of symptoms, may be associated with disparities in the early identification and intervention of autism. Among a sample of 406 Medicaid-eligible children, Mandell et al. (2007) found that African American children were 2.6 times less likely than White children to receive an autism diagnosis at their first specialist visit. For African American children who were not diagnosed with autism, ADHD was the most

common diagnosis. An ADHD or adjustment disorder diagnosis was given 5.1 times more frequently in African-American children than White children. And African-American children are 2.4 times more likely to receive a diagnosis of conduct disorder than of ADHD. As evidenced by the large differences in the pattern of diagnosis, it appears that clinicians lack adequate training in recognizing the characteristics of autism in children of color. Furthermore, implicit bias may negatively impact providers' communication with families and gathering of behavioral symptoms, and this in turn may adversely affect their judgments and assessments of the presenting symptoms, leading them to attribute autistic characteristics to behavioral problems (Angell et al., 2018; Aylward et al., 2021).

Additionally, Angell et al. (2018) reviewed multiple studies and observed that it is common for autistic children aged three and older to receive special education services in their public schools. There is, however, a disparity in the type and amount of special education services received by students of color, indicating a need for research in evidence-based school-based autism intervention for students of color. Moreover, in contrast to general patterns of underrepresentation of children of color in autism research, students from racial and ethnic minority groups were overrepresented in school-based interventions designed to reduce problem behaviors for students on the autism spectrum (Severini et al., 2018). According to Angelle et al., this phenomenon suggests that students of color may still be disproportionately identified as having "behavioral problems" even after receiving a diagnosis of autism.

Based on the above findings, researchers recommend that healthcare providers initiate educational campaigns and community awareness activities to support marginalized families in low-income and minoritized communities (Aylward et al., 2021). To increase multicultural inclusivity in services, healthcare providers should consider language accessibility, logistic

barriers (e.g., transportation, childcare, and job accommodations) and cultural acceptance in communications (Aylward et al., 2021). In addition, other researchers have emphasized the importance of implementing programs and interventions based on cultural and familial strengths (Angell et al., 2018).

Gender Biases

As discussed in the previous section, researchers called for attention/ concerns to reevaluate the threshold and manifestation of autism symptoms for females that leads to inaccurate and delayed diagnoses (APA, 2022; Kirkovski et al., 2013; Loomes et al., 2017). A discrepancy in the frequency of diagnosis between genders may partly be attributed to gender biases, because many diagnostic tools were originally developed for male participants. Consequently, females may need to demonstrate more substantial autistic features to receive a diagnosis. Research also suggested autistic females tend to engage in “camouflaging” behaviors more often than autistic males (Hull et al. 2017), leading to more difficult autism detection (Schuck et al., 2019). According to Hull et al. (2017), camouflaging behaviors are categorized as masking and compensating strategies that autistic individuals use to conceal their autistic traits and present themselves as socially competent to avoid being noticed as experiencing social difficulties. Examples of masking may include attempts to suppress/ minimize self-soothing or stimming behaviors, or responses to sensory overstimulation, to make the individual's condition less observable to others. As part of these strategies, autistic individuals reported using objects as 'props' to meet sensory needs in a subtle manner. Sometimes they come up with reasons to leave overstimulating environments and calm down. The compensatory strategy includes adopting specific non-verbal communication strategies and guidelines for effective conversations with others, such as maintaining eye contact, looking as

close to another as possible, or displaying non-verbal and verbal signs of interest during social interactions.

The imbalance in identification rates between gender also led to clinicians and researchers' interests in exploring the gender differences in clinical needs among autistic individuals. In a study examining sex/gender differences in camouflaging behaviors of 17 males and 11 females diagnosed with ASD, Schuck and colleagues (2019) found that female participants camouflaged their autistic features more frequently than males. The researchers also established that females are subjected to societal pressures to conform to gender roles, which may contribute to the gender differences in camouflaging.

According to the study, autistic females appeared to be more self-conscious than their male counterparts when displaying their emotions, resulting in their intentional suppression of these emotions in order to appear more neurotypical to others (Schuck et al., 2019). Given autistic females who exhibit characteristics that are stereotypical of the male gender, such as disruption or a lack of empathy, are more likely to be stigmatized and rebuked (Goldman, 2013), Schuck and colleagues (2019) cautioned that autistic females may experience increased emotional stress. They also hypothesized that the pressure to camouflage may prevent positive emotions from being expressed.

Neurodiversity Perspective

As awareness grows in society, among individuals and families of the autism community, a movement has emerged within the social science community to offer a revised perspective on autism by incorporating a neurological and developmental diversity perspective referred to as neurodiversity. Judy Singer introduced the concept of neurodiversity in 1991 (Singer, 2017). As an autistic individual who lived with generations of autistic family members, she identified the

need for advocacy for societal acceptance towards autism. Singer's (2017) work significantly influenced neurodiversity by adopting an integrated neurological and holistic perspective. Autism has more recently been conceptualized from the perspective of neurodiversity as a range of human experiences pertaining to how one processes, understands, and interacts with the world (Chapman, 2020; Prizant & Fields-Meyer, 2015; Singer, 2017).

Aligned with the neurodiversity perspective, Grant (2021) discussed the significance of addressing terminology related to autism in both clinical and research practice. For instance, instead of the pathological term "disorder", Kenny (2016) reported that the autism community prefers identity or person first language when referencing autism. An example of identity-first language would be "autistic child" or autistic individuals." An example of person-first language would be "child with autism" or "individuals with autism" (Bottema-Beutel et al., 2020; Grant, 2021).

Research showed that identity-first language is preferable among adults and family members, friends, and parents, while professionals tend to adopt person-first language (Bottema-Beutel et al., 2020; Kenny, 2016). Considering suggestions from recent research, I am choosing to use identity first language (autistic individuals) and person first language (children on the autism spectrum) interchangeably. However, I will avoid the term children with ASD unless citing directly from references.

Furthermore, scholars and researchers operating from a neurodiversity perspective are concerned with the impacts of ableism on autistic individuals due to the prevalent use of ableist language in autism research and literature (Bottema-Beutel et al., 2020). Center for Disability Rights defined ableism as "a set of beliefs or practices that devalue and discriminate against people with physical, intellectual, or psychiatric disabilities and often rests on the assumption

that disabled people need to be ‘fixed’ in one form or the other” (Smith, n.d.). Bottema-Beutel and colleagues (2020) posited ableism is a system of discrimination that perpetuates the idea that autistic individuals are inferior to their neurotypical counterparts. Therefore, the team advocated for accessibility and inclusivity in autism research and eschewed the use of ableist language in both written and spoken work. Bottema-Beutel et al. (2020, p. 20) shared recommendations including: replacing patronizing or stigmatizing terms, such as “special interests” and “special needs” with “focused interests” and use descriptions of specific needs and disabilities. The team objected medicalized/deficit language such as “at risk for autism” and recommended more neutral terms such as “increased likelihood/chance of autism.” In addition, the team cautioned autism researchers to be mindful of the potential marginalization of autism when describing the socio-economic circumstances of autistic individuals. Rather than reporting “burden” or “suffering”, researchers may center the discussion on the impacts or effects of social arrangement. Bottema-Beutel et al.’s suggestions provided guidance for the current study to adopt a more inclusive approach when documenting and disseminating the research, with the intention to reflect the priorities and dignity of the autism community.

In summary, the autism community has faced oppression and marginalization as a result of eugenic and ableist beliefs. Public misconceptions about autism further contributed to the stigmatization of autism. Communities of color and low-income families may face additional challenges in identifying autism and accessing services and interventions for their children. Therefore, scholars and researchers emphasized the importance of addressing multicultural factors that may impede access to autism information and interventions. A number of personal and family characteristics were highlighted, including race and ethnicity, language, sociodemographic factors, and parental education levels. In addition, healthcare providers'

stigmas and biases are cited as barriers. The gender biases associated with autism identification and autistic females' vulnerability are also discussed. Lastly, neurodiversity advocates challenged the medical conception of autism as a disorder and have advocated for the recognition of autism as a dimension of a diverse range of human experiences. These multicultural considerations inform the current study as an advocacy tool for promoting autism intervention from a neurodiversity standpoint. Following this, I will discuss the emotional and behavioral challenges that autistic children face.

Co-occurring Emotional and Behavioral Problems in Children on the Autism Spectrum

According to the latest statistical findings in the DSM-5 TR, about 70% of individuals diagnosed with ASD may have one comorbid mental disorder, and 40% may have two or more comorbid mental conditions such as anxiety disorders and disruptive behavioral disorders (APA, 2022). Previous research also indicated that children and adolescents on the autism spectrum are highly likely to struggle with emotional and behavioral problems in addition to challenges and deficits that are considered the core ASD symptoms (Kurzius-Spencer et al., 2018; Matson et al., 2009; Salomone et al., 2014; Shea et al., 2018; Totsika et al., 2011; Wiggins et al., 2022).

Behavioral problems are also described as “behavioral difficulties” or “challenging behaviors” in the autism literature to document children’s behavioral conditions that warrant interventions. In some publications, the terms “behavioral and emotional problems” or “emotional and behavioral problems” are used to link emotional symptoms with internalized and externalized behaviors among autistic individuals (Berkovits et al., 2017; Kurzius-Spencer et al., 2018; Totshika et al., 2011). In a review of behavioral intervention research summary articles published between 1996 and 2000, Horner et al. (2002) found 9 publications that included studies on autistic children aged 8 years or younger, using problem behaviors as a dependent

variable. These studies included data collected from 24 children and 37 comparisons of behavioral concerns during interventions. Disruption/tantrums were the problem behavior of concern in 28 of 37 comparisons (76%), followed by aggression in 22 comparisons (59%), stereotypy in 5 comparisons (14%), and self-injury in 4 comparisons (11%). Some participants exhibited more than one type of problem behavior. Additionally, Horner et al. identified a trend of intervention employed to address these behavioral concerns among autistic populations. Before 1990, punishment-based and reinforcement-based intervention were most common. Punishment-based procedures included strategies to reduce problem behaviors through the delivery of aversive stimuli or removal of positive stimuli; reinforcement-based interventions were used to increase desired behaviors by delivering events contingent on the desired behavior being observed (Horner et al., 2002). After 1990, Horner et al. (2002) identified an increase in stimulus-based and instruction-based interventions. Stimulus-based procedures involved altering antecedent events prior to a problem behavior, such as modification in curriculum, scheduling, and physical setting. Instruction-based intervention included direct instruction on appropriate behaviors, such as instruction on self-management skills, or instruction on picture communication schedules. Pharmacological interventions, on the other hand, are least reported in the literature (Horner et al., 2002).

To explore the relationship between symptoms of ASD (DSM-IV-TR, APA, 2000) and challenging behaviors, Matson and colleagues (2009) performed multiple analyses among 313 children and adolescents aged from 2 to 17. The sample of the study consisted of three groups: 182 autistic children, 100 neurotypical children, and 31 children diagnosed with an Axis I psychopathology or a condition that did not meet criteria for ASD, according to DSM-IV-TR (APA, 2000) or ICD-10 (WHO, 1993). In the first part of the study, the researchers compared the

number of challenging behaviors between all three groups of children measured by the Autism Spectrum Disorders-Behavior Problems for Children (ASD-BPC; Matson et al., 2008). The ASD-BPC measures disruptive, aggressive, self-injurious and stereotypic behaviors commonly reported as challenging behaviors among autistic individuals (Matson et al., 2008). Results showed that autistic children had a statistically higher score on the ASD-BPC compared to both neurotypical children and children with a non-ASD diagnosis. Meanwhile, there was not a statistically significant difference between neurotypical children and children diagnosed with a psychopathology. These findings indicated autistic children exhibit highest levels of challenging behaviors among all three groups; although, Matson et al. (2009) cautioned that the differences in amount and severity of challenging behaviors among three groups may be amplified due to considerable fewer male participants in the neurotypical children group.

After the initial analysis, Matson and colleagues (2009) examined the severity of challenging behaviors specifically in the autistic children group ($n = 176$). The researchers reported 94.3% of the sample exhibited some form of challenging behavior, indicated by a score of 1 or 2 on any of the 18 items on the ASD-BPC (Matson et al., 2008). Sixty-three percent of the sample exhibited externalizing challenging behaviors, such as kicking objects, aggression toward others, property destruction; and 83% exhibited internalizing challenging behaviors such as repeated and unusual body movements, removal of clothing at inappropriate times, unusual play with objects. Additionally, repeated and unusual vocalizations, repeated and unusual body movements, and aggression toward others constituted the three most frequently reported items on the ASD-BPC. These behaviors were reported to be exhibited by over 50% of the participants. Whereas items most endorsed as severe (i.e., a score of 2) included repeated and unusual body movements (19.9%), repeated and unusual vocalizations (18.8%), and unusual play with objects

(18.8%). It is noteworthy that, although repetitive and stereotyped behaviors ranked the most frequently reported and most frequently reported as “severe” in intensity, these behaviors are also core symptoms of ASD. Therefore, Matson et al. advised the readers to also pay attention to other behaviors reported by over 40% participants such as physical aggressive, elopement, verbal aggression, and property destruction.

Considering gender differences, when comparing the 38 male and female participants within the sample, Matson et al. (2009) found no statistically significant differences between males and females with regard to total ASD-DC score, ASD-BPC score, or ASD-BPC Internalizing and Externalizing factor scores, indicating both male and female autistic children are likely to exhibit challenging behaviors.

Furthermore, Matson et al. (2009) examined the relationship between the severity of ASD symptoms and the type of behavior problems in children by analyzing participants' total scores on the Autism Spectrum Disorders-Diagnostic for Children (ASD-DC; Matson et al., 2007) and the ASD-BPC. The researchers found that total scores on the ASD-DC were statistically significantly correlated with total scores on the ASD-BPC, suggesting that severity of autism symptoms predicts severity of challenging behaviors across the internalizing and externalizing domains. Additional analyses also indicated that core autism symptoms related to impairment in social interaction serve as significant predictors of challenging behaviors. However, due to majority of the items on ASD-BPC pertained to stereotypic or repetitive behaviors may overlap with the constructs of the ASD-DC, Matson et al. (2009) cautioned that future study is needed to enhance the understanding of challenging behaviors not specific to autism core features.

Recently, Galligan et al. (2022) examined the correlations between emotional and behavioral problems, core autism symptoms, and cognitive functioning. The research team found

that participants' emotional and behavioral problems (defined by overactivity, tantrums/aggression, and anxiety observed by clinicians) positively correlated with autism symptom severity (as measured by the Autism Diagnostic Observation Schedule-- Second Edition [ADOS-2]; Lord et al. 2012), and negatively associated by cognitive functioning (measured by Wechsler Preschool and Primary Scale of Intelligence, Third Edition [WPPSI-III]; Wechsler, 2002). Autism symptom severity, however, was a much stronger predictor of emotional and behavioral problems than intellectual functioning. These results confirmed that emotional and behavioral problems of autistic children, including tantrums, overactivity, and anxiety, are associated with social interaction difficulties among autistic children. Additionally, the correlation between these two constructs indicates that emotional and behavioral problems may impede the development of social skills in autistic children as well as vice versa (Galligan et al., 2022).

Consistent with the above findings, several studies indicated communication skills and language ability are associated with both internalizing and externalizing problems (Fok & Bal, 2019; Kaat et al., 2014; Norris et al., 2019; Shea et al., 2018). Fok and Bal (2019) compared the emotional and behavioral profiles of autistic children ($n = 1,937$) with minimal speech, phase speech, and verbal fluency by using the Aberrant Behavior Checklist (ABC; Aman et al., 1985) and Child Behavior Checklist (CBCL; Achenbach & Rescorla 2000, 2001). The researchers found that minimally verbal autistic children showed higher levels of irritability, social withdrawal, and hyperactivity as measured by the ABC. The research team also found that verbally fluent autistic children had higher levels of internalizing problems (as measured by CBCL) compared with the minimally verbal and phase speech groups; language differences, however, did not correlate with the CBCL externalizing problem scale. A post-hoc analysis

revealed that fewer children with less verbal language exhibited clinically elevated anxiety and depression scores compared to children with more verbal language, thus contributing to the group differences in internalizing problems. The study by Fok and Bal (2019) highlighted the importance of taking language ability into consideration when assessing the emotional and behavioral difficulties of children on the autism spectrum. Additionally, Shea et al. (2018) examined a group of autistic children with higher cognitive abilities and found that participants' social functioning (as measured by the Vineland-II Adaptive Behavior Scales [VABS-II]; Sparrow et al., 2005) predicted their externalized behaviors such as aggression and hyperactivity (measured by the BASC-2 Parent Rating Scale; Reynolds & Kamphaus, 2004). A lower score on the VABS-II socialization domain was associated with a higher score on the BASC-2 Externalizing Problems Index. In light of this finding, the researchers recommended that clinicians explore the nature and functions of aggression and hyperactivity in autistic individuals. In order to ameliorate externalizing behaviors among autistic children, the researchers advocated addressing social functioning difficulties during autism intervention (Shea et al., 2018).

Interestingly, a recent study conducted in Spain yielded similar findings and provided further insights regarding the interconnections between emotional regulation and core autism diagnostic features including social communication difficulties and restricted and repetitive behaviors. Martínez-González and colleagues (2022) explored the relationship between stereotypic and self-injurious behaviors, emotional regulation, and social communication among autistic children. The researchers found a statistically significant correlation with a large effect size between emotion regulation (defined by regulation, temperament, reactivity, and adaptation) and social communication. These findings suggested individuals with higher communication skills were more stable emotionally. More importantly, the results of statistical analyses

suggested that difficulty with emotion regulation was a strong predictor of self-injurious behaviors, whereas difficulty with social communications predicted stereotypic behaviors. While recognizing stereotypic behaviors may serve as a way of emotional self-regulation, the researchers noted these behaviors may indicate anxiety in unpleasant situations. Therefore, Martínez-González et al (2022) advocated for autism interventions that enhance autistic children's emotional regulation and social communication, to help them increase adaptive behaviors (Martínez-González et al., 2022).

Considerations of Cognitive Functioning

Multiple studies have demonstrated the frequent occurrence of emotional and behavioral problems among autistic children and established the association between autism severity and emotional and behavioral problems (Horner et al., 2002; Maston et al., 2009; Martínez-González et al., 2022; Shea et al., 2018). These studies, however, did not explore other individual variables, such as cognitive abilities. To gain an understanding of the interaction of diagnostic features and behaviors associated with ASD and co-occurring intellectual disabilities (ID), researchers compared the levels of emotional and behavioral difficulties among different clinical groups of children (Kaat et al., 2014; Kurzius-Spencer et al., 2018; Totshika et al., 2011).

In a large study conducted in the UK, Totshika and colleagues (2011) investigated the relationship between levels of behavioral and emotional difficulties and maternal well-being among four groups of children with the clinical features of: ASD, both ASD and ID, ID alone, and children with typical development. Based on parental reports, children with ASD (with and without ID) showed the highest likelihood of exhibiting emotional and behavioral problems compared to neurotypical children with and without ID. After accounting for gender, age, socioeconomic position, and maternal mental health, ASD and ID diagnoses independently

predicted hyperactivity, emotional symptoms, and conduct problems. Compared to ID, ASD was a stronger predictor of emotional and behavioral problems.

Kaat et al. (2014) explored the relationship between autistic children's intellectual ability, adaptive behaviors, and emotional and problem behaviors measured by the Aberrant Behavior Checklist (ABC; Aman et al., 1985). Overall, the researchers found that age, sex, and intellectual ability (measured by IQ) were mostly uncorrelated to the ABC subscale scores, indicating autistic children of different ages, genders, and cognitive abilities may exhibit emotional and behavior problems measured by the ABC. A small negative correlation exists between age and the Irritability and Hyperactivity/Noncompliance subscales, suggesting that autistic children may show a slight reduction in behavioral problems as they mature. Intellectual ability is negatively correlated with Lethargy/Social Withdrawal and Stereotypic Behaviors with small effects, indicating autistic children with ID showed slightly higher social withdrawal and stereotypic behaviors than autistic children without ID ($IQ \geq 70$). The researchers also found a very small but statistically significant correlation between ASD severity (measured by the Autism Diagnostic Observation Schedule [ADOS]; Gotham et al. 2009) and ABC Lethargy/Social Withdrawal and Stereotypic Behavior, specifically among autistic children who are minimally verbal. Additionally, decreased adaptive behavior, as measured by the Vineland Adaptive Behavior Scales-II (VABS-II; Sparrow et al. 2005), was a stronger predictor of higher ABC subscale scores than IQ scores. Both the VABS-Composite (VABS-C) score and all domain scores were correlated to increased Irritability, Hyperactivity, Lethargy/Social Withdrawal, and Stereotypic Behavior. In particular, the VABS-C score had a moderate association with ABC Stereotypic Behavior and the VABS Communication domain score was moderately related to ABC Lethargy/Social Withdrawal. These results are consistent with existing research (Matson et

al., 2009; Shea et al., 2018) suggesting communication skills may mediate the relationship between ASD severity and Lethargy/Social Withdrawal and that autistic children with poor communication skills tend to be more withdrawn (Kaat et al., 2014).

Furthermore, Kurzius-Spencer et al. (2018) examined the associations between common behavioral problems and ASD diagnoses according to the DSM-IV-TR (APA, 2000), in children with and without co-occurring ID. All participants in the study were eight years old.

Approximately one-third of the sample had co-occurring ID; 52% of those with ID had mild cognitive impairments (IQ 50-70), 19% were moderately impaired, 9% were severely or profoundly impaired, and 20% had cognitive impairments not otherwise specified. There were 64% of children without co-occurring IDs who had average to above average IQ scores (IQ > 85) and 36% who had below average IQ scores (IQ 71-85). Kurzius-Spencer et al. (2018) identified 10 behavioral problems among the participants based on DSM-IV-TR (APA, 2000) diagnostic criteria for ASD and behavioral problems. These behavioral problems included:

inattention/hyperactivity; physical aggression toward others; argumentative; oppositional; and destructive behaviors; temper tantrums; self-injurious; behaviors; unusual or odd responses to sensory stimuli; abnormalities of mood or affect; lack of fear or excessive fearfulness; sleeping abnormalities or problems sleeping; and abnormalities in eating or drinking.

Several significant findings emerged from the statistical analyses. First, almost all children in the study exhibited co-occurring behavioral problems, indicating the need to address these concerns in clinical practice. Sixty percent of participants exhibited six or more behavioral problems, regardless of their co-occurring ID. More than 70% of children exhibited inattention/hyperactivity, argumentative/oppositional behaviors, mood problems, and unusual sensory responses. Approximately 45-65% of children were presented with temper tantrums,

aggression, abnormal fear responses, and abnormal eating habits, while more than 25% had problems sleeping and exhibited self-injurious behaviors.

Secondly, the researchers examined correlations between each behavior across all samples, and found statistically significant correlations, but with low effect sizes. Among all behavioral problems, aggression, argumentative/oppositional behavior, temper tantrums, and self-injurious behavior indicated a comparatively higher correlation coefficient (Kurzius-Spencer et al., 2018). These findings appeared to confirm the tendency of a cluster of externalizing behaviors among autistic children with or without ID. When looking at disaggregated data, the correlation between aggression and self-injurious behaviors were statistically higher among autistic children with or without ID. On the other hand, the correlations between argumentative behavior and aggression; argumentative behavior and unusual fear response; and temper tantrums and sensory problems were statistically higher among children diagnosed with autism only (Kurzius-Spencer et al., 2018). These results highlighted the complex interactions between individual's behavioral problems and developmental level.

Other data from the studies indicated cognitive impairment was not associated with inattention/hyperactivity, aggression, argumentative/oppositional behavior, temper tantrums, or unusual sensory responses in autistic children. However, Kurzius-Spencer and colleagues (2018) found that children with both autism and ID diagnosis had statistically significantly more frequent reports of self-injury, unusual fear responses and eating problems (Kurzius-Spencer et al., 2018). The research team emphasized the increased likelihood of these three behavioral problems with greater severity of cognitive impairment. For instance, autistic children with severe-profound ID were 1.84 times more likely than autistic children with normal intelligence to exhibit self-injurious behaviors. Conversely, the research team observed that autistic children

with average to above IQ showed more likelihood of mood abnormalities and sleep abnormalities, compared to children diagnosed with both autism and ID (Kurzius-Spencer et al., 2018).

Considerations of Emotional Dynamics and Relational Factors

To understand more of the emotional dynamics of behavioral problems in autistic children, Berkovits et al. (2017) conducted a longitudinal study examining emotional regulation deficits among 108 young children diagnosed with autism spectrum disorder (ages 4 to 7). Based on parents' rating of their children's emotional regulation and dysregulation across two times in a 10-month period, the researchers found a moderate to high correlation between children's emotion regulation and their levels of autism symptoms (measured by the Social Responsiveness Scale, second edition [SRS-2]; Constantino & Gruber, 2012), social skills (measured by the Social Skills Improvement System [SSIS]; Gresham & Elliott, 2008), and behavioral functioning (measured by the Child Behavior Checklist [CBCL]; Achenbach & Rescorla 2000, 2001). The results of the study showed that children's high level of emotional dysregulation predicts more severe autism core symptoms, deficits in social skills, and worsening behavioral problems. Also, within the sample of this study, emotional regulation appeared uncorrelated with cognitive development and language functioning, indicating autistic children with average cognitive functioning are also at-risk of emotional dysregulation. Additionally, this longitudinal study suggested that without targeted intervention, emotion dysregulation may decrease during the preschool and early school years. This may lead to deterioration in social skills and worsening internalizing and externalizing behaviors.

Based on these findings, Berkovits and colleagues (2017) proposed to reframe behavioral symptoms as emotion-related symptoms, which give a more holistic understanding of the

relationship between emotion regulation difficulties and the exhibition of behavioral outcomes among young children on the autism spectrum. According to Berkovits and colleagues, behavioral dysregulations are defined as children's inability to monitor physical movement and inhibit or delay impulses or gratification, which are one of the results of the child's limitation in self- and emotional regulation. Examples of the emotional and behavioral connection are some autistic children exhibit disruptive behaviors (such as physical aggression or temper tantrum) when experiencing negative emotions (such as feeling angry or frustrated), others experience strong emotions that interferes with their goal-directed behaviors. For example, some autistic children struggle to maintain focus on a task when feeling overwhelmed or frustrated (Berkovits et al., 2017). The researchers also urged clinicians to target emotion regulation as part of autism intervention.

Additionally, emotional and behavioral problems are found to be associated with parental stress or mental health problems (Totshika et al., 2011; Yorke, 2018) Compared to mothers of neurotypical children, mothers of children with autism (across intellectual functioning) experienced higher levels of emotional disorder (Totshika et al., 2011). The researchers also found a statistically significant negative correlation between maternal mental health and child emotional symptoms. This correlation suggested parent's high positive mental health may predict autistic children's low levels of emotional problems. Furthermore, the impact of maternal psychological well-being on children's hyperactivity and conduct problems was moderated by adversity. In other words, in families with high adversity, low positive mental health in the mother was likely to increase hyperactivity and conduct problems (Totshika et al., 2011).

In a study conducted in Canada, researchers reported findings regarding the nuanced differences in tantrum behaviors between neurotypical and autistic children (Beauchamp-Châtel

et al., 2019). Beauchamp-Châtel et al. found that frequency and durations of tantrums are not statistically different between two groups, however the reason or triggers are different. Parents of autistic children who participated in the study reported the most common reason for their child's tantrums is when the parent is "unable to understand the child's meaning, anger and frustrations". In another study, Teague et al. (2020) found a strong correlation between attachment quality and behavioral and emotional problems. Autistic children showed higher levels of emotional and behavioral problems and were presented with more attachment difficulties than children with other developmental disabilities. The researchers also found that poorer attachment quality served as a strong predictor of the child's emotional and behavioral problems. Beauchamp-Châtel et al.'s (2017) and Teague et al.'s (2020) studies appeared to highlight the importance of relational attachment and understanding of the child's expressions as a key to reducing emotional and behavioral problems.

Negative Outcomes of Co-occurring Emotional and Behavioral Problems in Children on the Autism Spectrum

Autism is considered a pervasive developmental disability where social communication deficits persist through adulthood. Literature established that outcome of autism is determined by the severity of core autism features and levels of cognitive and language impairments. Although emotional and behavioral problems are not considered central to the core features of autism, the exhibition of these problems may further impede children's engagement in activities, socialization, and other learning opportunities (Matson & Nebel-Schwalm, 2007). Additionally, daily functioning and quality of life among individuals on the autism spectrum is affected by their levels of emotional and behavioral problems (Matson et al., 2009; Salomone et al., 2014; Shea et al., 2018).

Persistent emotional and behavioral problems among autistic children could cause physical harm to the individual or others, and limit individuals' participation and engagement in social and learning activities (Newcomb & Hagopian, 2018; Shea et al., 2018). Moreover, severe emotional and behavioral problems could lead to higher frequency of restrictive behavior management methods, such as increased use of physical restraints, mechanical restraint, and exclusionary arrangement.

Furthermore, continuous exposure to restrictive behavioral management may create a vicious cycle for autistic children resulting in the lack the opportunities to develop emotional regulation. Berkovits et al. (2017) cautioned that low emotional regulation led to long term consequences of unresolved negative emotions and children may develop fewer adaptive emotion regulation strategies throughout later childhood. Lasting outcomes of behavioral and emotional problems include diminished quality-of-life for the individual and family and warrants costly treatment, medical visits, crisis-related expenses, resources, and systemic support (Berkovits et al., 2017).

Given high rates of emotional and behavioral problems in children and adolescents on the autism spectrum, there is an urgent need for counselors to explore appropriate intervention, particularly mental health services that target social-emotional regulation to ameliorate emotional and behavioral problems. In the same vein, effective autism interventions require the counselor's understanding of the complexity of neurodevelopmental and co-occurring emotional and behavioral problems.

Observation and Assessment of Emotional and Behavioral Problems

To accurately determine the severity of co-occurring emotional and behavioral problems in autistic children, clinicians and researchers sought a sensitive measure that could quantify

changes in behavior but not stable traits (Farmer & Aman, 2011). In addition, this type of measurement is helpful in assessing treatment effects. The Aberrant Behavior Checklist (ABC), developed by Aman et al. in 1985, collects caregivers' perceptions of the effects of treatment. It is an empirically developed assessment widely used in clinical drug research for developmental disabilities and ASD. Aman et al. (1985) gathered a list of maladaptive behaviors that are common causes for treatment and intervention in residential settings and tested the items using factor analysis. Results yielded five-factor solution on 58 items, categorizing acting out and socially withdrawn behaviors into five subscales: I) irritability, agitation, crying (15 items); II) lethargy, social withdrawal (16 items); III) stereotypic behavior (7 items); IV) hyperactivity, noncompliance (16 items); and V) inappropriate speech (4 items). In the second edition of the ABC (ABC-2; Aman & Singh, 2017), the names of the subscales were changed to Irritability, Social Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech.

The five domains of emotional and behavioral problems have been validated in autism normative samples by Kaat et al. (2014) and Norris et al. (2019). Using a large sample of autistic children ($n = 1,893$), Kaat and colleagues (2014) established convergent validity between ABC subscales and the Child Behavior Checklist subscales (CBCL; Achenbach & Rescorla, 2000, 2001). Additionally, Norris et al. (2019) utilized a sample of 470 autistic children and adolescents and established convergent validity between ABC and the Repetitive Behavior Scale-Revised (RBS-R; Bodfish, Symons, & Lewis, 1999). Based on the results from both studies, the ABC subscales can be interpreted as follows:

Irritability

The ABC Irritability subscale is composed of items such as “injures self”, “screams inappropriately”, “temper tantrums”, and “demands must be met immediately” (Aman & Singh, 2017). This subscale was highly correlated with the CBCL scales of Emotionally Reactive, Aggressive Behavior, Affective Problems, Oppositional Defiant Disorder (ODD) Problems, Internalizing Problems, and Externalizing Problems, demonstrating its ability to capture emotional and acting-out behaviors in autistic children (Kaat et al., 2014).

Lethargy/Social Withdrawal

In the ABC Lethargy/Social Withdrawal subscale, items such as "seeks isolation", "preoccupied, stares into space" and "fixed facial expression; lacks emotional reactivity" were included (Aman & Singh, 2017). This subscale was strongly correlated with CBCL Social Problems, Withdrawn/Depressed, Pervasive Developmental Problems (PDP), and Internalizing Problems scales; suggesting its ability to assess features of social impairments in autistic children (Kaat et al., 2014).

Stereotypic Behavior

The ABC Stereotypic Behavior subscale included items for measuring repetitive and ritualistic behaviors, such as “meaningless, recurring body movements”, “stereotyped, repetitive movements”, and “waves or shakes the extremities repeatedly” (Aman & Singh, 2017). Aman et al. (1985) stated stereotypic behaviors are rarely assessed independently in childhood psychopathology, except in populations with intellectual disabilities. Kaat et al. (2014) identified a moderate correlation between the ABC Stereotypic Behavior subscale and CBCL PDP and Internalizing Problem scales. Norris and colleagues (2019) found a large correlation between ABC Stereotypic and RBS-R Stereotyped Behavior subscales which measures

restricted/repetitive behaviors individuals diagnosed with ASD. Results of both studies supported the use of the ABC Stereotypic Behavior subscale to measure repetitive and restrictive behaviors of individuals with autism and intellectual disabilities (Kaat et al. 2014; Norris et al., 2019).

Hyperactivity/Noncompliance

The ABC Hyperactivity/Noncompliance subscale includes items such as "Excessively active", "Disobedient, difficult to control", "Disturbs others" and "Pays no attention when spoken to" (Aman & Singh, 2017). A significant correlation was observed between this subscale and the CBCL Attention Problems, Attention Deficit Hyperactivity Disorder (ADHD) Problems, Externalizing Problems, and Total Problems, suggesting that it is capable of capturing aspects of ADHD and disruptive behavior problems in autistic children (Kaat et al., 2014).

Inappropriate Speech

The ABC Inappropriate Speech subscale consists of four items: "talks excessively", "repetitive speech", "talks to self loudly" and "repeats a word or phrase over and over" (Aman & Singh, 2017). Kaat et al. (2014) found no meaningful correlation between this subscale and any of the CBCL scales, suggesting it measures a unique domain of challenging behaviors as opposed to what CBCL measures. As noted by Norris et al. (2019), the ABC Inappropriate Speech subscale facilitates the identification of disruptive verbal behaviors that require intervention in autistic individuals.

As a result of Kaat et al.'s (2014) and Norris et al.'s (2019) studies, the ABC has been strongly validated as a behavioral measure for autistic individuals. More importantly, their studies provided clinical insights on how to assess and define emotional and behavioral problems behaviors among individuals with autism and intellectual impairment.

In summary, autistic children often experience emotional and behavioral problems that are not limited to the core features of autism. Multiple research suggested regardless of their age, gender, and cognitive functioning, autistic children are extremely likely to experience or exhibit emotional and behavioral difficulties and problems, such as anxiety, inattention/hyperactivity, aggression, argumentative/oppositional behavior, temper tantrums, and unusual sensory responses (Berkovits et al., 2017; Horner et al., 2002; Kaat et al., 2014; Kurzius-Spencer et al., 2018; Martínez-González et al., 2022; Matson et al., 2009; Shea et al., 2018; Totsika et al., 2011). Some evidence showed that autistic children with intellectual impairment are more prone to having self-injurious behaviors, unusual fear responses, and eating abnormalities; while autistic children with normal to high cognitive functioning are more likely to develop mood problems and sleep abnormalities (Kurzius-Spencer et al., 2018). Additionally, increased self-injurious behaviors may be predicted by the lack of emotional regulation (Martínez-González et al., 2022). Other studies have shown that autistic children may have differences in their profiles of emotional and behavioral problems as a result of their language and communication difficulties (Kaat et al., 2014; Martínez-González et al., 2022; Shea et al., 2018). Without intervention, these emotional and behavioral problems are more likely to worsen than improve, and may further impede autistic children's educational, social and community opportunities (Berkovits et al., 2017; Horner et al., 2002). Moreover, associations between social communications, emotional regulation, and behavioral problems indicated the necessity for clinicians to consider the relational and emotional dynamics of challenging behaviors among autistic children. Given the variability of emotional and behavioral needs, counselors may identify individualized intervention focus when working with children with different neurodevelopmental, cognitive, and language abilities. Aberrant Behavior Checklist (ABC;

Aman et al., 1985) is a well-established assessment often used to aid clinical measurement of emotional and behavioral problems for individuals with developmental disabilities. The ABC was validated and normed on a large sample of autistic children and adolescents (Kaat et al., 2014; Norris et al., 2019). Therefore, this assessment can be used as an instrument to capture changes throughout intervention to indicate treatment effects in autism intervention studies. In the following section, I will explore different interventions recommended and available for children on the autism spectrum.

Autism Interventions

Types of Autism Intervention

The U.S. National Institute of Mental Health (NIMH) (2022) asserted the importance of timely intervention after diagnosis to help autistic individuals learn new skills and build their strengths. Currently, the main goal of autism intervention involves reduction of autistic traits and behaviors that interfere with daily functioning and quality of life (CDC, 2022). Due to the heterogeneity of autism, both the CDC and NIMH recommended individuals and caregivers to seek a combination of intervention and services to address various needs based on individual strengths and challenges (CDC, 2022; NIMH, 2022). The NIH divided autism interventions into two broad types: i) Medication and ii) Behavioral, Psychological, and Educational Interventions. Medication is recommended as a treatment for emotional or behavioral concerns such as irritability, aggression, repetitive behavior, hyperactivity, attention deficit, anxiety, and depression. Behavioral, psychological, and educational interventions are recommended for outcomes such as: a) learning social, communication, and language skills; b) reduction of behaviors that interfere with daily functioning; c) increasing or building strengths; d) learning life skills for living independently.

The CDC provided further information on various intervention approaches available for autistic communities, including i) Behavioral; ii) Developmental; iii) Educational; iv) Social-Relational; v) Pharmacological; vi) Psychological; and vii) Complementary and Alternative Approaches. The CDC's (2022) definition of each approach are summarized as follow:

Behavioral Approaches

Behavioral approaches are those with the focus of distinguishing undesirable behaviors and teaching socially desired behaviors. The CDC (2022) recognized behavioral interventions as having more evidence support.

Developmental Approaches

Developmental approaches refer to intervention targeting specific developmental skills, such as language skills or physical skills. Speech and Language Therapy and Occupational Therapy are common developmental approaches adopted.

Educational Approaches

Educational approaches refer to special educational interventions implemented within classroom settings. Common strategies include the use of visual learning tools and modified verbal instructions accompanied by visual instructions or physical demonstrations.

Social-Relational Approaches

Social-Relational interventions refer to treatments that focus on building emotional bonds and improving social skills.

Pharmacological Approaches

Pharmacological interventions refer to medication that alleviate co-occurring behavioral concerns, such as excessive energy, attention deficits, or self-harming behaviors. The CDC

(2022) stated that medication may be prescribed based on the need to manage co-occurring psychological conditions, or to regulate sleep and treat somatic concerns.

Psychological Approaches

Psychological approaches include interventions that focus on helping autistic individuals cope with mental health issues.

Complementary and Alternative Approaches

Complementary and Alternative Approaches are interventions that are adopted by individuals or parents to supplement more traditional approaches (CDC, 2022).

Systematic Review of Autism Interventions

Evidently, a broad range of educational and behavioral interventions exist for children on the autism spectrum. Although the NIHM and CDC provided public information concerning types and directions for services, these public health organizations offered limited data regarding the effectiveness and efficacy of interventions. To assist families, educators, and service providers in their decision-making related to autism intervention, the National Autism Center conducted phases of systematic review of evidence-based practices for autism through their National Standards Project (NSP) (National Autism Center [NAC], 2015). Phase one of NSP involved a systematic evaluation of educational and behavioral interventions for autistic individuals under the age of 22; phase two of the project involved an update of the literature for interventions for children and adolescent, as well as expanded the scope of review to include intervention studies for autistic individuals ages 22 years and older (NAC, 2015).

In addition to the 775 studies reviewed in phase one, the latest review included 361 behavioral intervention studies for autistic children and adolescents. Based on the quality, quantity, and consistency of research findings, the expert panel reviewed and classified each intervention into

one of the three categories: Established, Emerging, and Unestablished (NAC, 2015). Each category discerns the strength of evidence of the intervention in improving targeted skills and/or behaviors. Established interventions are indicated by “sufficient evidence is available to confidently determine that an intervention produces favorable outcomes for individuals on the autism spectrum” (p. 34). Emerging interventions included “one or more studies showing favorable outcomes but lacked quality studies to draw firm conclusions about intervention effectiveness” (p.34). Unestablished interventions had “little or no evidence to make firm conclusions about intervention effectiveness. And research may show the intervention to be effective, ineffective, or harmful” (p. 34). The NAC (2015) identified 14 established interventions, 18 emerging interventions and 13 unestablished interventions. Established interventions included behavioral interventions, cognitive behavioral intervention, language training, parenting training and other techniques, such as modeling, schedule, and self-management. Table A.3 provides a full list of intervention of all three categories.

Table A.3

National Standards Report on Intervention for Autism

Established	Emerging	Unestablished
Behavioral interventions	Augmentative and alternative communication devices	Animal-assisted therapy
Cognitive behavioral intervention package	Developmental relationship-based treatment	Auditory integration training
Comprehensive behavioral treatment for young children	Exercise	Concept mapping
Language training (production)	Exposure package	DIR/floor time
Modeling	Functional communication training	Facilitated communication
Natural teaching strategies	Imitation-based intervention	Gluten-free/casein-free diet
Parenting training	Initiation training	Movement-based intervention
Peer training package	Language training (production & understanding)	Sense theatre intervention
Pivotal response training	Massage therapy	Sensory intervention package
Schedules	Multi-component package	Shock therapy
Scripting	Music therapy	Social behavioral learning strategy
Self-management		Social cognition intervention
Social skills package		Social thinking intervention

Story-based intervention	Picture exchange communication system Reductive package Sign instruction Social communication intervention Structured teaching Technology-based intervention Theory of mind training
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Note. Summary of research findings from NAC (2015), p.41–72.

Moreover, the NAC presented two subclassifications of targeted outcome(s) in these interventions: Skills Increased and Behaviors Decreased. The Skills Increased category consisted of 10 developmental skills that intervention providers may target to increase; the Behaviors Decreased category included four areas of behavioral challenges that intervention providers may target to decrease. Table A.4 indicates the targeted outcomes of each established intervention. As specified in the table, almost all established interventions focus on increasing communication skills and interpersonal skills. As defined by the NAC (2015, p. 37), communication skills consist of both verbal or nonverbal signaling with a social partner; some examples of communication tasks are requesting, labeling, conversation, and greetings. Interpersonal skills are defined by social interaction tasks with one or more individuals; some examples of the learning tasks are joint attention, friendship, social and pretend play, and appropriate participation in group activities. Nine out of the 14 established interventions targets increase of play tasks, defined by “non-academic and non-work-related activities that do not involve self-stimulatory behavior or require interaction with other persons”. Examples of play tasks are functional independent play, such as learning the way certain toy works or game-playing. Only five of the 14 established interventions are protocols that can be used directly with autistic children under 12 years of age, which focus on decreasing problem behaviors that are harmful to

self or others, such as self-injury, aggression, disruption, destruction of property or sexually inappropriate behaviors.

It is noteworthy that NAC (2015) acknowledged that their systematic reviews included only behavioral and educational peer-reviewed intervention. Hence, all the 14 established intervention are either variations or components of behavioral interventions derived from the principles of applied behavior analysis (ABA). ABA emphasizes a systematic evaluation of targeted human behaviors, given the assumption that behavioral changes are dependent on the exposure to external stimuli and consequences such as punishment and reinforcement (Fishbein et al., 2017; Ringdahl et al., 2009). Behavioral interventions consistent with ABA generally involve the use of operant conditioning and external reinforcement, with the emphasis in structure, teaching, training, and “extinguishing” undesirable behaviors or target deficit. Some of the interventions such as scripting and modeling, are behavioral strategies that can be used in isolation, while others are considered as part of a complex intervention package (e.g., Comprehensive Behavioral Treatment for Young Children [CBTYC]).

Table A.4

Established Interventions Reviewed by National Autism Center (2015)

Established Interventions	Targeted Age	Targeted Intervention Outcome												
		Skills Increased										Behaviors Decreased		
		Academic	Communication	Higher Cognitive Functions	Interpersonal	Learning Readiness	Motor Skills	Personal Responsibility	Placement	Play	Self-Regulation	General Symptoms	Problem Behaviors	Restricted, Repetitive, Non-functional Patterns of Behavior, Interests, or Activity (RRN)
Behavioral interventions	3-21	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓
Cognitive behavioral intervention package	6-14			✓	✓			✓	✓				✓	✓
Comprehensive behavioral treatment for young children	0-9	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	
Language training (production)	3-9		✓		✓					✓				
Modeling	3-18	✓	✓	✓	✓			✓		✓			✓	✓
Natural teaching strategies	0-9		✓		✓	✓				✓				
Parenting training package	0-18				✓					✓		✓	✓	✓
Peer training package	3-14		✓		✓	✓								✓
Pivotal response training	3-9		✓		✓	✓				✓				
Schedules	3-9										✓			
Scripting	3-14		✓		✓					✓				
Self-management	15-21	✓	✓		✓						✓			✓
Social skills package	13-18		✓		✓	✓			✓	✓		✓	✓	✓
Story-based intervention	3-14		✓		✓	✓					✓		✓	

Furthermore, Wong and colleagues (2015) reviewed autism intervention studies published between 1990 and 2011 to identify evidence-based interventions for children and youth on the autism spectrum. In conducting this systematic review, the researchers focused on identifying Focused Interventions as behavioral, developmental, and/or educational interventions aimed at specific skills or goals (Wong et al., 2015). The research team determined that an intervention is regarded as evidence-based when it meets the criteria and level of evidence established by the National Professional Development Center on Autism Spectrum Disorders (NPDC). These criteria include (a) an intervention supported by two high-quality experimental or quasi-experimental design studies conducted by two different research groups, or (b) five high-quality single case design studies conducted by three different research groups and involving a total of 20 participants across studies, or (c) a combination of research designs that must include at least one high quality experimental/quasi-experimental design, three high-quality single case designs, and be conducted by more than one researcher or research group. This set of criteria led Wong and colleagues to identify 456 intervention articles and summarize the findings in support of 27 evidence-based interventions for people with autism ages 22 and under. Studies included mainly children ages 6 to 11; few included children under 3 or over 12 years of age. The 27 evidence-based interventions identified by Wong et al. are similar to those identified by NAC (2015). The interventions were either ABA-based (using reinforcement, extinction, and prompting), assessment and analytical (such as functional behavior assessment and task analysis), or combinations of behavioral practices. A majority of interventions are delivered by Board Certified Behavior Analysts (BCBAs); some interventions are used as methods of instruction; others may be used regularly by parents or teachers. Table A.5 contains detailed descriptions and definitions of each evidence-based intervention.

Table A.5

Definitions of Evidence-Based Practices (EBP) for Autistic Children and Youth

Evidence-Based Practice	Definition	Empirical Support	
		Group (n)	Single Group (n)
Antecedent-based intervention (ABI)	Arrangement of events or circumstances that precede the occurrence of an interfering behavior and designed to lead to the reduction of the behavior.	0	32
Cognitive behavioral intervention (CBI)	Instruction on management or control of cognitive processes that lead to changes in overt behavior.	3	1
Differential reinforcement of alternative, incompatible, or other behavior (DRA/I/O)	Provision of positive/desirable consequences for behaviors or their absence that reduce the occurrence of an undesirable behavior. Reinforcement provided: (a) when the learner is engaging in a specific desired behavior other than the inappropriate behavior (DRA), (b) when the learner is engaging in a behavior that is physically impossible to do while exhibiting the inappropriate behavior (DRI), or (c) when the learner is not engaging in the interfering behavior (DRO).	0	26
Discrete trial teaching (DTT)	Instructional process usually involving one teacher/service provider and one student/client and are designed to teach appropriate behavior or skills. Instruction usually involves massed trials; each trial consists of the teacher's instruction/presentation, the child's response, a carefully planned consequence, and a pause prior to presenting the next instruction	0	13
Exercise (ECE)	Increase in physical exertion as a means of reducing problem behaviors or increasing appropriate behavior.	3	3
Extinction (EXT)	Withdrawal or removal of reinforcers of interfering behavior in order to reduce the occurrence of that behavior. Although sometimes used as a single intervention practice, extinction often occurs in combination with functional behavior assessment, functional communication training, and differential reinforcement.	0	11
Functional behavior assessment (FBA)	Systematic collection of information about an interfering behavior designed to identify functional contingencies that support the behavior. FBA consists of describing the interfering or problem behavior, identifying antecedent or consequent events that control the behavior, developing a hypothesis of the function of the behavior, and/or testing the hypothesis.	0	10
Functional communication training (FCT)	Replacement of interfering behavior that has a communication function with more appropriate communication that accomplishes the same function. FCT usually includes FBA, DRA, and/or EX.	0	12

Modeling (MD)	Demonstration of a desired target behavior that results in imitation of the behavior by the learner and that leads to the acquisition of the imitated behavior. This EBP is often combined with other strategies such as prompting and reinforcement.	1	4
Naturalistic intervention (NI)	Intervention strategies that occur within the typical setting/activities/routines in which the learner participates. Teachers/service providers establish the learner's interest in a learning event through arrangement of the setting/activity/routine, provide necessary support for the learner to engage in the targeted behavior, elaborate on the behavior when it occurs, and/or arrange natural consequences for the targeted behavior or skills.	0	10
Parent-implemented intervention (PII)	Parents provide individualized intervention to their child to improve/increase a wide variety of skills and/or to reduce interfering behaviors. Parents learn to deliver interventions in their home and/or community through a structured parent training program.	8	12
Peer-mediated instruction and intervention (PMII)	Typically developing peers interact with and/or help children and youth with ASD to acquire new behavior, communication, and social skills by increasing social and learning opportunities within natural environments. Teachers/service providers systematically teach peers strategies for engaging children and youth with ASD in positive and extended social interactions in both teacher-directed and learner-initiated activities.	0	15
Picture Exchange Communication System (PECS)	Learners are initially taught to give a picture of a desired item to a communicative partner in exchange for the desired item. PECS consists of six phases which are: (1) "how" to communicate, (2) distance and persistence, (3) picture discrimination, (4) sentence structure, (5) responsive requesting, and (6) commenting.	2	4
Pivotal response training (PRT)	Pivotal learning variables (i.e., motivation, responding to multiple cues, self-management, and self-initiations) guide intervention practices that are implemented in settings that build on learner interests and initiative.	1	7
Prompting (PP)	Verbal, gestural, or physical assistance given to learners to assist them in acquiring or engaging in a targeted behavior or skill. Prompts are generally given by an adult or peer before or as a learner attempts to use a skill.	1	32
Reinforcement (R+)	An event, activity, or other circumstance occurring after a learner engages in a desired behavior that leads to the increased occurrence of the behavior in the future.	0	43
Response interruption/redirection (RIR)	Introduction of a prompt, comment, or other distracters when an interfering behavior is occurring that is designed to divert the learner's attention away from the interfering behavior and results in its reduction.	0	10
Scripting (SC)	A verbal and/or written description about a specific skill or situation that serves as a model for the learner. Scripts are usually practiced repeatedly before the skill is used in the actual situation.	1	8
Self-management (SM)	Instruction focusing on learners discriminating between appropriate and inappropriate behaviors, accurately monitoring and recording their own behaviors, and rewarding themselves for behaving appropriately.	0	10

Social narratives (SN)	Narratives that describe social situations in some detail by highlighting relevant cues and offering examples of appropriate responding. Social narratives are individualized according to learner needs and typically are quite short, perhaps including pictures or other visual aids.	0	17
Social skills training (SST)	Group or individual instruction designed to teach learners with autism spectrum disorders (ASD) ways to appropriately interact with peers, adults, and other individuals. Most social skill meetings include instruction on basic concepts, role-playing or practice, and feedback to help learners with ASD acquire and practice communication, play, or social skills to promote positive interactions with peers.	7	8
Structured play groups (SPG)	Small group activities characterized by their occurrences in a defined area and with a defined activity, the specific selection of typically developing peers to be in the group, a clear delineation of theme and roles by adult leading and/or prompting or scaffolding as needed to support the students' performance related to the goals of the activity.	2	2
Task analysis (TA)	A process in which an activity or behavior is divided into small, manageable steps in order to assess and teach the skill. Other practices, such as reinforcement, video modeling, or time delay, are often used to facilitate acquisition of the smaller steps.	0	8
Technology-aided instruction and intervention (TAII)	Instruction or interventions in which technology is the central feature supporting the acquisition of a goal for the learner. Technology is defined as “any electronic item/equipment/application/or virtual network that is used intentionally to increase/maintain, and/or improve daily living, work/productivity, and recreation/leisure capabilities of adolescents with autism spectrum disorders” (Odom et al. 2014)	9	11
Time delay (TD)	In a setting or activity in which a learner should engage in a behavior or skill, a brief delay occurs between the opportunity to use the skill and any additional instructions or prompts. The purpose of the time delay is to allow the learner to respond without having to receive a prompt and thus focuses on fading the use of prompts during instructional activities.	0	12
Video modeling (VM)	A visual model of the targeted behavior or skill (typically in the behavior, communication, play, or social domains), provided via video recording and display equipment to assist learning in or engaging in a desired behavior or skill.	1	31
Visual supports (VS)	Any visual display that supports the learner engaging in a desired behavior or skills independent of prompts. Examples of visual supports include pictures, written words, objects within the environment, arrangement of the environment or visual boundaries, schedules, maps, labels, organization systems, and timelines.	0	18

Note. Reproduced from Wong et al. (2015), p.1959-1960.

Wong et al. (2015) reported that most of the intervention studies focused on outcomes concerning core symptoms of ASD such as communication and social skills. In 456 studies, 182 examined outcome variables related to children's ability to express their wants, needs, choices, feelings, or ideas; 165 studies examined interpersonal skills as outcome variables. Moreover, 158 studies investigated intervention effects to decrease or eliminate challenging behaviors that interfere with children's learning. There was, however, only one study that investigated mental health outcomes of autistic children (Wong et al., 2015). In particular, this study examined the effect of cognitive behavioral therapy (CBT) on daily living skills in 40 autistic children with anxiety disorders (see Drahota et al., 2011). Children who participated in 16 weekly sessions of CBT showed increased daily living skills; the researchers also reported a negative correlation between participants' anxiety severity and daily living skills scores in both the experimental and waitlist control groups (Drahota et al., 2011). The correlational nature of the analyses in this study did not provide strong evidence to support CBT as a mental health intervention for autistic children. Additionally, the results did not seem to generalize to all autistic children or children who had other emotional problems. This is because the sample only consisted of children diagnosed with ASD and anxiety disorders who had an IQ at or above 70. Figure A.1 illustrates and provides additional information on the goals and outcomes targeted by each of the 27 evidence-based interventions.

Figure A.1

Evidence-Based Practices by Outcome and Age in Years Reviewed by Wong et al. (2015)

EBP	Social			Communication			Behavior			Joint Attention			Play			Cognitive			School Readiness			Academic			Motor			Adaptive			Vocational			Mental Health		
	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22
ABI																																				
CBI																																				
DRA/I/O																																				
DTT																																				
ECE																																				
EXT																																				
FBA																																				
FCT																																				
MD																																				
NI																																				
PII																																				
PMII																																				
PECS																																				
PRT																																				
PP																																				
R+																																				
RIR																																				
SC																																				
SM																																				
SN																																				
SST																																				
SPG																																				
TA																																				
TAII																																				
TD																																				
VM																																				
VS																																				

Note. Reproduced from Wong et al. (2015), p. 1961. EBP = Evidence-based practice; ABI = antecedent-based intervention; CBI = cognitive behavioral intervention; DRA/I/O = differential reinforcement of alternative, incompatible, or other behavior; DTT = discrete trial teaching; ECE = exercise; EXT = extinction; FBA = functional behavior assessment; FCT = functional communication training; MD = modeling; NI = naturalistic intervention; PII = parent-implemented intervention; PMII = peer-mediated instruction and intervention; PECS = Picture Exchange Communication System; PRT = pivotal response training; PP = prompting; R+ = reinforcement; RIR = response interruption/redirection; SC = scripting; SM = self-management; SN = social narratives; SST = social skills training; SPG = structured play groups; TA = task analysis; TAI = technology-aided instruction and intervention; TD = time delay; VM = video modeling; VS = visual supports. A shaded cell indicates that at least one study documented the efficacy of that practice for the age identified in the column on a given outcome.

Virués-Ortega (2010) evaluated the effectiveness of long-term, comprehensive ABA intervention for young children with autism through a meta-analysis as well as a meta-regression. In this meta-analysis, long-term, comprehensive ABA intervention was defined as implementing the UCLA model (Lovaas, 1981) or the general ABA model (e.g., Cooper et al., 2007; Maurice et al., 1996) for a minimum of 10 weekly hours and a maximum of 45 weeks. The meta-analysis included 22 repeated-measures and controlled studies, comprising 359 individuals who participated in intervention groups ($\bar{x} = 17.95$, $\tilde{x} = 15.5$, $Mo = 13$). The participants ranged in age from 26.6 to 66.3 months. According to the analyses, long-term, comprehensive ABA intervention provided medium to large improvements in autistic children's intellectual functioning, language development, and adaptive behaviors. Furthermore, the effects of ABA on language-related outcomes, including IQ, expressive and receptive language, and communication, were more significant than outcomes related to non-verbal IQ, social functioning, and daily living abilities. In addition, Virués-Ortega found that participants' language skills increased with intervention duration, while intervention intensity predicted psychosocial adaptive behaviors. The meta-analyses showed positive results in all outcome variables, but Virués-Ortega cautioned that only half of the studies were controlled studies, and randomization was rarely applied, resulting in concerns about internal validity. Therefore, future randomized controlled studies are needed in order to strengthen the empirical support of ABA. Another limitation to the meta-analyses was the inability to differentiate operational definitions for ABA intervention models and the absence of intervention fidelity measures. Consequently, there was limited information about the extent to which therapists adhered to treatment protocols in the intervention groups. Lastly, the researcher acknowledged the lack of formal comparisons

of ABA intervention with other autism interventions in the identified studies. Thus, readers are cautioned to conclude that ABA is superior (Virués-Ortega, 2010).

The findings of NAC's (2015) study, as well as those of Wong et al.'s (2015) and Virués-Ortega's (2010) studies, provided useful information about behavioral interventions for autistic individuals, caregivers, educators, and clinicians. However, these findings indicated a major limitation in current evidence-based practice for autistic children - a lack of information relating to social-relational approaches or psychological approaches recommended by the CDC (2022). In addition to revealing a gap in autism intervention research that is lacking in addressing autistic children's emotional and mental health needs, the reports also urged clinicians to consider the limitations of behavioral interventions in enhancing autistic children's social-emotional development. As a matter of fact, educators and researchers across disciplines have consistently criticized behavioral interventions and advocated for additional and/or alternative autism interventions in order to meet the complex needs of autistic individuals (Berkovits et al., 2017; Schuck et al., 2022; Strain & Schwartz, 2001)

Criticisms and Limitations of Behavioral Intervention for Autistic Children

Autism researchers and scholars documented several criticisms and limitations for behavioral interventions. First, the adult-directed nature of instruction and strict stimulus control in behavioral interventions does not facilitate spontaneous use of skills (Strain and Schwartz, 2001; Vismara & Rogers, 2010). Secondly, the highly structured teaching environment in ABA and the use of artificial reinforcers may limit the generalization of skills in natural environment and promote prompt dependency or rote responding (Cumming et al., 2020; Sandoval-Norton et al., 2019; Strain and Schwartz, 2001). Thirdly, effective ABA requires long-term and time intensive procedures, consisting of 10 to 40 hours weekly, for two or more years (Granpeesheh et

al. 2009; Virués-Ortega, 2010). Moreover, behavioral interventions are criticized for the use of punitive procedures which may create traumatic experiences and philosophical dissonance with positive behavioral support (Cumming et al., 2020; Sandoval-Norton et al., 2019; Schuck et al., 2022).

Education psychologists Strain and Schwartz (2001) argued that behavioral interventions in education settings helped modify autistic children's social behaviors but did not help them establish meaningful relationships. Social behavior is viewed as a discrete skill in behavioral interventions, ignoring cultural, contextual, and interpersonal factors like peer rejection that affect social interactions. Moreover, based on observational studies, Strain and Schwartz (2001) identified that children rarely initiate social interactions by making prompting or complimenting statements. It is instead reciprocal social overtures that initiate and maintain social interactions. Nevertheless, positive reinforcement, such as toys, materials, and instructions produce only short-term impacts. Therefore, a reduction of behaviors to stimuli and responses may prevent social learning from being generalized to the real world (Strain & Schwartz, 2001).

Many autism interventions have focused on addressing behavior problems through systematic behavior management, such as reinforcement of alternative behaviors and positive behavior supports, or by modeling and repetition of social skills. However, these interventions do not address emotional regulation, which Berkovits et al. (2017) believed was the underlying process of both internalizing and externalizing behaviors for autistic children. Akin to Strain and Schwartz's (2001) view, Berkovits et al. cautioned that behavioral interventions generally emphasize isolated social tasks that ignore the complexity of social interaction and remove the child from their own emotional experiences. Often, autistic children are taught the emotional facial expressions on cards correspond to appropriate labels, but this type of intervention does

not help autistic children develop the skills to regulate their emotions, which is crucial to their ability to cope with stress and maintain a stable emotional state conducive to learning and social interaction. Moreover, although research exists supporting the use of behavioral interventions for enhancing autistic children's language skills, social functioning, adaptive behaviors, cognitive ability, and challenging behaviors, there is a lack of experimental evidence supporting the school-age outcomes (Vinen et al., 2022) or the long-term benefits on adult outcomes (Jónsdóttir et al., 2018; Vismara & Rogers, 2010).

Behavioral intervention emphasizes external reinforcement. External reinforcement can be effective for increasing or decreasing specific behaviors, but it can also decrease an individual's intrinsic motivation or take away opportunities to develop self-control for healthy functioning, such as when a child learns to perform tasks only for the sake of reward or to avoid punishment (Sternberg & Williams, 2010). In the same vein, Sandoval-Norton et al. (2019) postulated that ABA may lead to prolonged negative outcomes, such as prompt dependency, reduced intrinsic motivation, and diminished self-esteem. Nevertheless, behavioral interventions have been reported as traumatic by autistic individuals and neurodiversity advocates, particularly with regard to the use of aversive, ranging from strategic ignoring, verbal disapproval, to slaps and shocks; and suppression of autistic traits (echolalia, motor stereotypes, and sensory behaviors) (Cumming et al., 2020; Stop ABA, Support Autistics, 2019). Special education teacher educators, Cumming and colleagues (2020) conducted a qualitative research among adults with disabilities ($n = 17$) to gather their perceptions related to ABA. In the study, autistic participants complained that ABA was designed to eliminate their autism and to make them appear neurotypical. They also described a lack of agency and self-determination in the treatment. The majority of autistic participants also reported feeling unloved and unaccepted;

many believed that they needed to change in order to be considered worthy by society. For them, ABA therapy was simply a series of compliance drills without any explanation or logic as to why they were necessary. Cumming et al.'s study revealed autistic individuals' desires to gain a sense of autonomy and normalization in their interventions. The study also underscored the significance of evaluating social validity of autism intervention, emphasizing the need to consider not only parents', teachers' and clinician's feedback, but also participants' feedback and acceptance when implementing autism interventions. Hence, the goal(s) and appropriateness of intervention should be guided by the participants not the clinicians.

Instead of seeking a cure for autism, autistic individuals and advocates continuously search for services and interventions that align with the neurodiversity framework. For example, a team of both neurotypical and autistic scholars, Schuck and colleagues (2021), proposed the benefits of individualized interventions that focus on the personal experiences of being on the spectrum, rather than symptom reduction. Although Schuck et al. focused their discussion on naturalistic developmental behavioral interventions (NDBIs; Schreibman et al., 2015), they encouraged autism clinicians and researchers of various orientations to bridge the wide gap between ABA and the neurodiversity movement by engaging in interventions that emphasize collaboration and empowerment with autistic individuals. Specifically, Schuck and colleagues urged clinicians and researchers to adopt a co-construction and strength-based approach to intervention characterized by: i) viewing the child as an active participant rather than a passive receiver; ii) adopting a child-led approach where children are encouraged to express their preferences and initiate spontaneous communications; iii) fostering the child's motivation rather than imposing a therapeutic agenda; iv) facilitating caregivers' role as intervention providers and involving family members in decision-making; v) considering cultural factors within family and

establish acceptable goals coherent with family routine; and vi) appreciating the unique traits and preferred interests of each individual child to tailor individualized goals rather than imposing rigid objectives of behavior reduction. In addition to multiple criticisms and limitations of behavioral interventions as a social-emotional intervention for autistic children, Schuck et al.'s discussion provided a philosophical support for the current study to explore a humanistic and child-centered approach to autism intervention.

Utilization of Autism Interventions

As discussed earlier, recommendations from both NIMH, CDC, and NAC, the general direction of autism intervention is to combine efforts from multiple disciplines to eliminate stereotypical and repetitive behaviors and improve social communication skills. When seeking intervention and services, autistic children and their families often mix and match their approaches (Dieleman, et. al., 2018). In a survey related to usage of autism spectrum intervention, Monz et al. (2019) reported that children of autism ages 4 to 17 ($\bar{x} = 9.1$ years old; $n = 5,122$) mostly received non-drug treatments of speech and language therapy (SLT) (71.4%), occupational therapy (OT) (60.1%), other intervention (such as social skills training, academic support and sensory integration) (67.8%), behavioral therapy (56.1%), psychological therapy (28.7%), parent/caregiver training (29.6%), and developmental/relationship-based interventions (26.3%). Ninety-six percent of participants received at least one of the therapies mentioned; 42% of the participants reported receiving four or more interventions concurrently, with most frequent combination of interventions being speech and language therapy and occupational therapy, followed by the combination of parent/caregiver training and behavioral therapy.

The researchers also noted a pattern of lower utilization of services of all categories by children living in rural areas compared with children residing in urban areas. The largest

differences were found in the use of behavioral therapy (46.4% vs 57.2%), SLT (65.0% vs 72.3%), and parent/caregiver training (24.1% vs 30.1%). Additionally, the three most commonly used concurrent interventions among children living rural areas were SLT, other interventions, and occupational therapy. Although behavioral intervention is frequently recommended as an early intervention for autism, less than half of the children living in rural areas participated in it. In line with these findings, children living in urban areas reported higher intensities of interventions such as “any” therapy, behavioral therapy, “other” therapy, and developmental/relationship-based interventions. Additionally, the intensity of behavioral therapy differed between Medicaid-only and private insurance-only patients (2 hours vs 4 hours weekly) (Monz et al., 2019).

Among the entire sample, parents reported that SLT and OT were most commonly provided in schools, while behavioral interventions and psychological interventions were most frequently provided outside schools. Furthermore, the researchers documented the following as the most common places of care: home for behavioral interventions (45.0%); public school for developmental/relationship-based interventions (56.0%), SLT (76.5%), occupational therapy (63.6%), and “other” interventions (57.7%); and private therapist for psychological interventions (57.8%). However, in rural areas, behavioral therapy is more often delivered in public schools (44.7%), while in urban areas, behavioral therapy is more commonly delivered at home (46.3%). The distribution of service utilization appeared to indicate services within the school (such as SLT and OT) are more accessible than services provided outside school (such as behavioral therapy and psychological interventions), especially for children residing in the rural areas (Monz et al., 2019). Nearly half of the participant (44.8%) reported at least one barrier to services. The barriers most frequently reported included: “waiting list” (26.4%), “no insurance

coverage” (17.9%), and “cost” (16.7%). Moreover, nearly one-third of the participants in rural areas reported “service not available in the area” (Monz et al., 2019). Despite finding a pattern, Monz et al (2019) cautioned readers against drawing causal conclusions from this cross-sectional study. Yet, the researchers hypothesized that the high rate of SLT and OT usage may have been the result of a) speech and language difficulties (such as echoing speech and language delays) and sensory dysfunction being frequent concerns among young children with autism; and b) the availability of services in schools, thereby reducing accessibility barriers.

On the contrary, although autistic children are highly likely to exhibit emotional and behavioral problems, Monz et al.'s (2019) study found that less than one-third of autistic children participate in psychological intervention, meaning autistic children may not receive adequate support or interventions when it comes to their emotional concerns. Altogether, findings from Monz et al.'s study suggested a discrepancy between autism interventions recommended by research and services actual utilized. The researchers also found that several autism services are inaccessible due to higher demand than supply, a lack of specific services within a location, and financial constraints. Given higher rates of autism intervention utilization within school settings, the researchers suggested public school may be an appropriate platform for service delivery to reduce barriers to accessing early interventions.

In summary, public health organizations such as NIMH and CDC recommend combined or inter-disciplinary interventions for autistic individuals to address their diverse developmental and clinical needs not limited to the core diagnostic features of autism. However, current autism literature indicates a lack of research beyond behavioral interventions. Even though a large body of research supports behavioral interventions as an evidence-based practice for behavioral changes in the autism populations, there is limited evidence related to emotional outcomes

(Berkovits et al., 2017); relational outcomes (Strain & Schwartz, 2001); or long-term benefits (Vinen et al., 2022; Jónsdóttir et al., 2018). Systemic reviews of behavioral intervention studies also revealed behavioral interventions fail to address emotional well-being and mental health issues of autistic children (Virués-Ortega, 2010; Wong et al., 2015). The vast gap in evidence-based practice calls for future research in social-relational and psychological interventions for autistic children.

Furthermore, neurodiversity advocates challenged the notion that autism-related behaviors should be extinguished through behavioral intervention, highlighting the detrimental effects of behavioral interventions on autistic individuals' self-esteem and intrinsic motivation (Cumming et al., 2020; Sandoval-Norton et al., 2019; Schuck et al., 2022). Due to the controversy over behavioral interventions, the autism community advocated for humanistic interventions that are grounded in respect and appreciation of the integrity of autistic individuals. Autism interventions adhering to neurodiversity should consider social validity as perceived by parents, teachers, and clinicians as well as by autistic people themselves. A national survey found that, despite receiving a variety of services, a high percentage of autistic children do not receive adequate emotional or mental health support. In order to reduce barriers to autism intervention, researchers identified public school services as a possible solution. In the following section, I will discuss a child mental health intervention that is grounded in humanistic principles that may fit the social-emotional needs of autistic children.

Theory, Practice, and Research of Child-Centered Play Therapy (CCPT)

Theory and Practice

Child-Centered Play Therapy (CCPT) is a relational approach to child psychotherapy developed by Virginia Axline (1947) based on Carl Rogers's person-centered theory (see Rogers, 1951; Rogers, 1957; Rogers, 1961). The person-centered theory holds that people are constructive in nature and tend to grow and move towards achieving their self-determined integration and potential. Based on this assumption, person-centered counselors rely fundamentally on the actualizing tendency for individuals' ongoing growth and enhancement (Rogers, 1951). Rogers (1951, pp. 481–533) presented 19 propositions that provided the framework for the person-centered personality theory. Through his propositions, Rogers highlighted the self-actualizing nature of the person and a holistic view of human development. Rogers further illustrated that individuals could only explore, evaluate, and integrate their experiences to develop a positive self-structure when situated in a non-threatening environment. It is therefore the primary objective of person-centered therapy to establish a facilitative relationship between the therapist and the client to eliminate threats to the client's self-structure.

Axline (1947) operationalized a process of working with children based on person-centered therapy with adults and named the approach non-directive play therapy. She developed eight basic principles that are essential to the therapeutic relationship in play therapy: i) The therapist establishes a warm and friendly relationship with the child; ii) The therapist accepts the child completely, without wishing the child to be different; iii) The therapist establishes a feeling of permissiveness to allow the child to fully express their thoughts and feelings; iv) The therapist recognizes the child's feelings and reflects them back to the child to enhance empathic understanding and the child's insight; v) The therapist respects the child as a capable individual

and returns responsibility to the child to make choices and solve problems; vi) The therapist allows the child to direct their own action and conversation, and takes a follower role; vii) The therapist trusts the gradual process in therapy and does not attempt to speed up the growth of the child; viii) The therapist establishes only those limitations necessary to anchor therapy to the world of reality and to make the child aware of responsibilities in the relationship (pp.73-74). These principles foster the development of safe relationships, which allow children to feel accepted, express themselves freely, and move toward a healthier way of being.

Over the ensuing decades, several scholars, such as Haim Ginnot (1961), Clark Moustakas (1953), Louis Guerney (1983), and Garry Landreth (1991, 2001, 2012), built upon Axline's work. The work they published significantly contributed to the development of what is now known as child-centered play therapy (Bratton et al., 2005; Ray, 2011). CCPT emphasizes the relationship between the therapist and the child as the primary healing factor in therapy (Landreth, 2012; Ray, 2011). Child-centered play therapists strive to exude genuineness, acceptance, and empathic understanding in their practice, rather than focusing on specific behavioral outcomes. By providing these conditions necessary for a child's development of a positive self-concept, the play therapist assists the child in developing a sense of responsibility and self-control, as well as improving their emotional and social well-being.

CCPT Research Base

Meta-Analyses

CCPT is supported by multiple meta-analyses of controlled research studies as developmentally appropriate for children ages 3 to 10 who experience a wide range of challenges such as social, emotional, behavioral and relational concerns (see Bratton et al., 2005; Drisko et al., 2020; Lin & Bratton, 2015; Ray et al., 2015). Bratton et al. (2005) conducted a

comprehensive meta-analytic review examining the efficacy of both humanistic (non-directive) and non-humanistic (directive) play therapy interventions; the Lin and Bratton (2015) meta-analysis examined the effectiveness of only CCPT; whereas Ray and colleagues' (2015) meta-analysis focused on examining the effectiveness of CCPT conducted in elementary schools.

As part of their meta-analysis, Bratton and colleagues (2005) examined the overall efficacy of play therapy with children by analyzing 93 controlled outcome studies (involving 3,248 children) published in the period 1953-2000. This meta-analysis yielded a mean effect size of .80, indicating large treatment effects. This would indicate that 80 percent of the improvements could be attributed to the play therapy group. As a second step, the researchers compared the effectiveness of humanistic-nondirective and nonhumanistic-directive therapy studies (including behavioral, cognitive, and directive play therapy). Results indicated that humanistic play therapies produced significantly larger effect sizes than non-humanistic play therapies despite both groups demonstrating positive outcomes. Researchers also compared interventions provided by professionals, parent-paraprofessionals, and parents trained in filial models. Results revealed that interventions that followed a filial model, in which parents used play therapy skills under close supervision, had the largest positive effect on the children. Furthermore, the researchers conducted analyses to investigate whether there was an association between children's age, gender, presenting concerns and the effectiveness of play therapy interventions. Their findings suggested that play therapy was equally beneficial across different ages, genders, and reported problematic behaviors or presenting concerns. The results of this study provided the basis for Bratton and colleagues (2005) to conclude that play therapy is an effective intervention for children's behavior, social adjustment, and personality.

Lin and Bratton (2015) updated the research literature by conducting a meta-analysis of 52 controlled outcome studies published between 1995 and 2010 that utilized CCPT or nondirective methods in play therapy. Using hierarchical linear modeling techniques, Lin and Bratton estimated a statistically significant moderate treatment effect size of 0.47 for CCPT ($p < .001$). According to their analysis, the effect sizes of CCPT for seven categories of presenting issues ranged from 0.33 to 0.63. Based on these results, Lin and Bratton considered CCPT to be effective across a wide range of presenting issues while showing the greatest benefit for broad-spectrum behavioral problems (combination of internalized and externalized behaviors), children's self-esteem and caregiver-relationship stress. The researchers also found that children aged 7 and under had a statistically significant greater effect size than children over 7 years of age (0.53 vs 0.21, $p = .017$) suggesting CCPT could possibly lead to greater benefits for younger children.

Furthermore, the researchers compared the effects of CCPT among White children and children of color who identified as African American, Latino/Hispanic, Asian/Asian American, and other minoritized ethnic groups. Results indicated that CCPT demonstrated statistically larger effects ($p = .009$) for children of color (0.76) compared with White children (0.33). This finding provided support for CCPT as a culturally inclusive intervention for children of diverse racial and ethnic identities (Lin & Bratton, 2015).

Ray et al. (2015) further contributed to the empirical support of CCPT by inquiring about the effectiveness of CCPT as a school-based mental health intervention for children. The meta-analysis is notable for having a control group in each of the studies analyzed that was either randomly assigned or assigned through another method of quasi-experimentation. Ray and colleague's meta-analyses included 23 studies that examined outcomes including externalizing

problems, internalizing problems, total problems, self-efficacy, academic, and other behaviors. Across all studies, the researchers identified a statistically significant ($p < .05$) small to medium effect sizes on all outcome constructs. (Ray et al., 2015). The following is a summary of the mean effect size for each outcome measure.

Internalizing Outcomes.

Nine studies examined internal processes to compare CCPT with a control or comparison group. The mean effect size of CCPT interventions for children was $d = .21$, which suggested a small effect.

Externalizing Outcomes.

Six studies compared CCPT with a control or comparison group using external processes as a dependent variable. Analyses showed that children who received CCPT interventions had a mean effect size of $d = .34$ in externalizing outcomes, which suggested a small to medium mean effect.

Total Problem Behaviors.

In 12 studies, researchers used assessment batteries to measure problem behaviors as a dependent variable, comparing CCPT with a control or comparison group. The mean effect size of CCPT interventions for children in total problem behavior was $d = .34$, which suggested a small to medium effect.

Self-efficacy.

In 9 studies, researchers used self-efficacy as a dependent variable, comparing CCPT with a control or comparison group. The mean effect size of CCPT interventions for children in self-efficacy was $d = .29$, which suggested a small effect.

Academic Outcomes.

In six studies, researchers included the use of achievement tests as the dependent variable, comparing CCPT with a control or comparison group. Analyses showed that children who received CCPT interventions had a mean effect size of $d = .36$ in academic outcomes, which suggested a small to medium effect.

Other Outcomes.

Measures of social skills, attitude toward school, and teacher-child relationships were included as other outcome measures in four studies. Hence, Ray and colleagues grouped them together as other outcome measures, comparing CCPT with a control or comparison group. Analyses showed that children who received CCPT interventions had a mean effect size of $d = .38$ in other outcomes, which suggested a small to medium effect.

Ray and colleagues (2015) also noted in the 23 studies, CCPT was typically 30 minutes in length; the duration of play therapy ranged from four to 25 sessions, with an average of 12 sessions. The positive results in outcome measures across all studies indicated children can benefit from relatively short-term play therapy. Moreover, the non-statistically significant difference between individual and group CCPT showed CCPT's effectiveness across both modalities.

All three meta-analyses have concluded that CCPT, when administered in a school setting, is an effective children mental health approach addressing various presenting concerns (Bratton et al., 2005; Lin & Bratton, 2005; Ray et al., 2015). The findings further indicated that CCPT was particularly effective for children from marginalized populations and children aged under seven (Lin & Bratton, 2005; Ray et al., 2015). In addition, children participated in short-term CCPT with 12 sessions on average had positive results (Ray et al., 2015).

Outcome Research

To date, over 130 CCPT outcome research studies have been conducted, supporting the use of CCPT for children presenting with internalized and externalized problems, in various settings, and with different cultural and racial backgrounds. The impact of CCPT on aggressive and disruptive behaviors has been established in contemporary experimental research. Recent empirical research supported that CCPT is a responsive treatment for young children who are presented with aggressive and disruptive behaviors (Blalock et al., 2019; Wilson & Ray, 2018). In a randomized controlled trial (RCT), Wilson and Ray (2018) researched the effectiveness of individual CCPT with young children who exhibited highly aggressive behaviors. Participants of the study were randomly assigned into CCPT treatment and control groups. Children in the experimental group received an average of 16 sessions of CCPT (2 times weekly) over an 8-week period. Children in the control group participated in weekly structured activity during the same period. Gathering pre-and post-test data, the researchers found that children who participated in CCPT significantly reduced overall levels of aggression and increased self-regulation and empathy when compared to the control group, with a large effect size of $d = .85$. Blalock et al. (2019) also adopted an experimental design to examine the effects of individual and group CCPT on social-emotional competencies with school aged children. Compared to wait-list control group, children who received individual or group CCPT showed statistically significant improvement on their self-regulation, responsibility, and overall social-emotional competencies. Furthermore, Swan and Ray (2014) examined the effects of CCPT on children diagnosed with an intellectual disability in a single-subject research design. Results on two participants indicated 15 sessions of CCPT reduced symptoms of hyperactivity and irritability

significantly. This finding indicated the effectiveness of CCPT to improve children's emotional and behavioral behaviors, despite their developmental and cognitive abilities.

This section presented the theoretical framework of CCPT and the abundance of research support for CCPT as a mental health intervention for children of various developmental abilities across school and clinical settings. In the next section, I will dive into the application and research of CCPT with children on the autism spectrum.

Application and Research on CCPT with Autistic Children

Facilitating Relational Healing

CCPT emphasizes the self-efficacy in children and can fill the gap of emotional needs of the children on the autism spectrum. Ray et al. (2012) provided theoretical rationale for utilizing CCPT with children on the autism spectrum. First, CCPT offers a relationship where autistic children can experience unconditional positive regard from the play therapist. The “being-with” attitude that the child-centered play therapist holds conveys a message to the child that they are accepted just the way they are. Secondly, CCPT provides children on the autism spectrum with the opportunities to engage in a non-verbal way of communication during treatment. The modality of CCPT is developmentally appropriate because many children on the autism spectrum experience language development difficulties. The child-centered play therapist attunes to the child's verbal and non-verbal expressions and uses therapeutic responses to enhance the child's communication throughout intervention. Thirdly, CCPT provides the child with an opportunity to be genuine and authentic to themselves. By engaging in authentic interactions with the therapist, the child may express themselves more fully and become more intrinsically motivated. Overall, through experiencing the relational qualities and intentional responses from the play therapists, children on the autism spectrum may tap into their inner resources to develop a more

positive sense of self and move towards connection with the external environment (Ray et al., 2012).

CCPT offers a holistic conceptualization of how emotions and behaviors play a role in autistic children's development of the self. The person-centered perspective views behaviors as a means of maintaining one's organismic being and achieving one's needs according to the environment, while emotions accompanying behaviors are viewed as dependent upon the perceived need in the situation. Consequently, the child's emotions and behaviors are always congruent with their view of self and the perceived environment (Landreth, 2012; Ray, 2011). In more concrete terms, feelings of unworthiness or unacceptance create barriers to self-acceptance, resulting in negative feelings and behaviors in autistic children (Ray et al., 2012). Given this assumption, CCPT therapists seek to establish a relationship and facilitate communications with children on the autism spectrum to help them develop a healthier sense of self, and an attitude of self-worth (Ray et al., 2012). It is expected that as the therapeutic relationship progresses, emotional and behavioral changes will occur as a result of an intrinsic need. Therefore, CCPT's work focuses primarily on the facilitation of relationships rather than teaching specific skills to eliminate autistic behaviors or emotional and behavioral problems. This assumption distinguishes CCPT from behavioral approaches that incorporate play skills during interventions. Rather than teaching specific ways to play, the CCPT therapist fully accepts a child's choice, interests, and expressions in play.

According to Ray (2011, p. 305-309), therapeutic non-verbal and verbal responses play a crucial role in the therapist's relationship with children. By using the following non-verbal expressions, play therapists offer acceptance and understanding to children: (a) maintain an open stance and lean forward, (b) remain attentive and appear interested, (c) actively works to remain

connected and avoid preoccupied thoughts, (d) remain relaxed with the child throughout the session, (e) congruent tone matching the child's affect, (f) genuine verbal expression matching the therapist's own words and affect. In terms of therapeutic verbal responses, Ray emphasized succinctness and rate responses that reflect of the child's level of interaction. She also recommended that play therapists utilize therapeutic verbal responses that fall under eight categories: (i) tracking behaviors, (ii) reflecting content, (iii) reflecting feeling, (iv) facilitating decision-making, (v) facilitating creativity, spontaneity, (vi) esteem building, encouraging, (vii) facilitating relationship, and (viii) limit-setting. The play therapists, therefore, fully adhere to the child-centered philosophy in their way of being (Ray, 2011).

Considerations When Working with Autistic Children

While CCPT provides an encompassing philosophy and consistent framework to work with all children, several CCPT researchers and scholars discussed special considerations when implementing CCPT with autistic children (Guest & Ohrt, 2018; Ray et al., 2012; Swan, 2018).

Preparation

A therapist is equipped with the knowledge of autism diagnostic features and is prepared for any emotional and behavioral problems the child may be exhibiting, particularly their self-harming or destructive behaviors. The therapist acknowledges autistic children may demonstrate more challenging behaviors and lower abilities with unfamiliar people, therefore initial assessment should be conducted in the presence of and interaction of a primary caregiver (Ray et al., 2012). As with CCPT with neurotypical children, the play therapist allows autistic children to move at their own pace. The child is not forced or pressured to answer any questions or engage in an activity that they are not comfortable with (Guest & Ohrt, 2018; Ray et al., 2012; Swan, 2018).

Progress Tracking and Planning

Understanding of the child in natural and familiar setting is essential to treatment planning, therefore, the therapist engages in consistent parent consultations. In terms of treatment modality (such as individual or group CCPT), recommendation shall be informed by individual child's needs and progress (Ray et al, 2012).

Therapeutic Responses

Establishing rapport and a level of trust is the cornerstone of CCPT, Guest & Ohrt (2018) noted for autistic children, this process may take more time. The therapist's effort of establishing contact is seen in the patience to slowly gain the child's trust, and use of non-threatening tracking responses (Guest & Ohrt, 2018; Ray et al., 2012). The therapist avoids overwhelming the child with intense eye-contacts. Moreover, the therapist is not discouraged when the child is silent or not responding (Ray et al., 2012).

Ray and colleagues (2012) emphasized therapist's increased understanding of the child and the deepened relationship as the key to identify the responses that are most in contact with the child's inner world. In a similar vein, Swan (2018) suggested the use of pre-therapy skills (Prouty, 2001) to enhance therapist-child attunement. Swan (p.113) noted:

The CCPT therapist exemplifies the heart of attunement by feeling their client's internal state and by experiencing their emotions, eye contact, vocalizations, and body language. The attuned therapist will also fully accept, see, interpret and respond to the child's unique means for expressing their emotions, needs, and desires. Through this special dance of attunement, the child begins to trust the therapist and engage in self-regulatory behaviors.

Swan (2018, p. 114-115) proposed three imitative responses and two reflections that are appropriate in CCPT to engage children and encourage imitative responsiveness. These responses include Body Movement Imitation, Object Imitation, Verbal Imitation, Facial/affect Reflection, and Linguistic Mapping.

Body Movement Imitation.

Play therapists use body movement imitation as a primary method of connecting and communicating with children on the autism spectrum. The therapist's imitation of the child's body movement may help them become more in touch with themselves, others, and the world around them.

Object Imitation.

Play therapists use object imitation to follow children's actions and engagement with objects. This may assist children to develop awareness of motor and sensory experiences.

Verbal Imitation.

Play therapists imitate the child's gestures and vocalizations that are both meaningful or lacking in context. These verbal imitations may facilitate children's development of communicative contact and functional play.

Facial/affect Reflection.

The play therapist's reflection of the child's facial expressions helps children learn how facial responses express feelings. Additionally, these reflections increase awareness of children's emotional responses, enabling them to establish affective contact. Facial/affect reflection resembles the CCPT response of reflecting feelings.

Linguistic Mapping.

Play therapists use linguistic mapping to help children make a connection between their words and actions in order to help them understand their immediate experiences. This skill is very similar to the CCPT skills of tracking behavior and reflecting content.

Therapists' Intentionality

Additionally, to attune to autistic children's neurological functioning, such as sensitivity to noise, interaction, and lights, the therapist pays attention to the room setup and arrangement of play therapy to increase the sense of safety. Some adjustments are lowering the light, ensuring the facilities are not crowded during appointment time, and using a gentle and not overly animated voice.

Considerations discussed above illustrated several ways that play therapists can consistently implement this non-directive and relationship-based approach with autistic children.

Play Therapy Research among Autism Populations

Even though there is increasing evidence of the efficacy of CCPT with neurotypical children, my comprehensive review of the play therapy literature revealed a dearth of research regarding the use of CCPT with children on the autism spectrum. From late 1980s to early 2000s, play therapy studies on autistic children are mostly done in the form of case studies. Past literature documented play therapy approaches with children on the autism spectrum include psychodynamic play therapy (Bromfield, 1989; Lanyado, 2005) which puts an emphasis on symbolic meanings and interpretation; and group play therapy (Koreger et al, 2007) that facilitate play and interactions. The early 2000s saw the rise of non-directive/child-centered play therapy studies that used a case study approach (Carden, 2009; Josefi & Ryan, 2004; Kenny & Winick, 2000; Mittledorf et al., 2001).

Play Therapy Case Studies with Autistic Children

Several case studies exist in the play therapy literature documenting the positive results of non-directive play therapy with autistic children. In a case study of non-directive play therapy in an outpatient setting, Kenny and Winick (2000) found that a school-aged autistic girl who

participated in 11 weekly sessions improved her social behavior and reduced irritability. The parental report also indicated she was more compliant at home. Josefi and Ryan (2004) conducted a case study in play therapy with a six-year-old autistic boy who indicated a need for a high level of support. After participating in 16 sessions of non-directive play therapy, the boy showed improvement in autonomy and pretend play. This study provided preliminary evidence that CCPT may enhance social-emotional development of children with severe autism. Josefi and Ryan (2004, p.534) stated that:

The therapeutic condition of unconditional positive regard (acceptance) concentrates on accepting children's current functioning, along with assuming that they possess an innate drive towards better functioning. In theory this allows children with autism to choose the pace and focus of change themselves, thus enabling joint attention to be instigated by children rather than adults, as well as increasing the children's autonomy under the favorable conditions of the playroom.

Following the work of Josefi and Ryan (2004), Carden (2009) documented her therapeutic process of using a combination of CCPT and filial therapy with a 10-year-old non-speaking autistic girl named Lisa. At the beginning of play therapy, Lisa presented with self-harming behaviors; she avoided eye contacts and was anxious to engage in any play. As the session progressed, Lisa increased self-expression and was more involved in her own play as well as increased interactions with the therapist. Carden also stated the child's movement toward symbolic play allowed the play therapist to understand Lisa's lived experience and therefore able to identify the source of her distress. Based on clinical observation and reported changes, Carden concluded play therapy can be a viable approach for understanding and working children on the autism spectrum.

Through understanding the child's perceptions, Carson (2009) conceptualized stereotypical behaviors as the child's direct reaction to sensory experience. She proposed that

Lisa's self-stimulatory behaviors, such as spinning, flapping, and tapping, could be her attempts to feel in control and to gain a sense of safety (p. 56).

In addition, Caden (2009) documented her intentions and use of play therapy skills such as descriptive observation (tracking and reflecting on content). According to Caden (p. 58), she attempted to enter Lisa's world by accepting her attitudes, feelings, and thoughts. Caden also documented her use of imitation of Lisa's actions and words to facilitate two-way interactions.

As a result of her study with autistic children, Caden (2009) provided strong testimony of non-directive play therapy. In Caden's opinion, Lisa's freedom to communicate would only come from the permissiveness, empathy, and acceptance that she experienced. In addition, Caden emphasized the significance of a compassionate relationship in order to accurately assess the child's needs and progress (p. 59):

In my role as the play therapist in the assessment I attempted to develop a relationship in which we could strive together to enable Lisa to communicate in a way that was accurate, a way that was consistent with her own unique experiences. It was a relationship in which we were both learning together, and throughout I was trying to understand Lisa's mind, meanings and experience. This understanding informed my assessment. It is my opinion that play therapy supported Lisa's development of an awareness of self and others. I believe that this case study demonstrates her understanding of perspective, and it also seems to increase her ability to cope more successfully in a world that was often very difficult for her understand.

Nevertheless, Carden (2009) was aware of the limitation in play therapy that the goal is not to overcome all the difficulties an autistic child encounters. Instead, the play therapist starts a journey and offers the opportunities for the child to begin to connect with the world. CCPT, therefore, is best understood as an intervention that helps autistic children to process their autistic experiences, rather than a cure for autism.

More recently, Guest and Ohrt (2018) presented a case study of a 5-year-old autistic boy who participated in 45 minutes of CCPT twice-weekly for one year. The researchers reported the boy moved through four therapeutic stages of warm-up stage, aggressive stage, aggressive-

regressive stage, and mastery stage in the first five months of therapy. They noted most significant outcomes in the child's understanding of his traumatic experiences and increased coping with his autistic features. Positive changes such as increased self-confidence and reduction in aggressive behaviors were observed in both home and school settings.

Altogether, findings from four studies reported improvements in attachment-related behaviors and social interactions in children on the autism spectrum. More importantly, these case examples provided qualitative data that describe positive client outcomes in CCPT for complex cases, including autistic children who experienced trauma or adverse experiences. However, given the small sample size and the uniqueness of each case presented, the previous studies posed limitations in clinical generalization.

Limitations of CCPT and Autism Case studies

In the report of her case study, Carden (2009) posed a challenge in play therapy – the underlying meaning may not be easily understood. Therefore, future studies in understanding play themes and play behaviors of autistic children may enhance the clinical practice of CCPT. Guest and Ohrt (2018) and Carden's (2009) studies also pointed to the vulnerability of autistic children related to trauma experiences, and the lack of empirical research in this area. Therefore, there is a need for intervention study to examine the efficacy of CCPT, particularly for autistic children who also experienced adverse experiences.

Moving Toward More Rigorous Research Design

Hillman (2018) conducted a literature review on the effectiveness of CCPT with children on the autism spectrum from 1900 to 2017 and identified four quantitative studies (see Josefi & Ryan, 2004; Kenny and Winick, 2000; Salter et al., 2016; Ware Balch & Ray, 2015). Hillman reported results from these four studies showed consistency in treatment direction and generated

positive treatment outcomes, indicating CCPT is promising in increasing social and emotional behaviors of children on the autism spectrum. Nevertheless, Hillman also noted the limitations of the reviewed studies related to small sample sizes and unspecified data regarding the pre- and post-treatment in baseline and intervention stage.

To expand on Hillman's work, I conducted a search in the literature to identify all research on CCPT with children on the autism spectrum between 2000 and 2022. Altogether, I identified two peer-reviewed quantitative research articles (see Goodman et al., 2015; Schottelkorb et al., 2020) in addition to the four studies that Hillman identified. Among all six studies, three utilized an empirical approach (Goodman et al., 2015; Schottelkorb et al., 2020; Ware Balch & Ray, 2015), two of which implemented an operationalized CCPT protocol to strengthen the replicability of the study (Schottelkorb et al., 2020; Ware Balch & Ray, 2015).

Ware Balch and Ray (2015) utilized an experimental, single-case, ABA multiple-baseline research design to examine the effects of CCPT on social-emotional competencies. The researchers sampled five children ages 5 to 9 who received diagnosis of ASD and were assessed to be at-risk or high-risk on social-emotional competencies, as measured by Social-Emotional Assets and Resilience Scales (SEARS; Merrell, 2011). After the baseline was established for each participant, they participated in approximately 20 CCPT sessions. The researchers reported some participants did not have 20 play therapy sessions because they entered the treatment stage at a later time and due to longer baseline phases. Quantitative data was collected weekly during the intervention stage (approximately 10 weeks), as well as during the follow up stage when no intervention was provided (3 weeks). When data collection was completed for the follow-up phase, the researchers conducted post-interviews with each parent of the participant to collect qualitative data related to their perceived changes in their children. This study indicated that

CCPT was beneficial for three participants in improving their social-emotional competency indicated by increased level of self-regulation/responsibility, social competence, and empathy, with a medium effect size. Results for two participants were inconsistent. The researchers hypothesized the variability of the treatment results may be due to the differences in the participant's levels of functioning and verbal communications. For participants who had no verbal communication and had lowest functioning levels needed longer time to warm up in the start of play therapy and they demonstrated least effort in engaging the play therapist in session. On the contrary, the participant who had the highest functioning demonstrated progress at the fastest pace. The results of this study indicated that CCPT appeared to be positively associated with improvement in social competency, as evidenced by all participants' improvement during intervention (Ware Balch & Ray, 2015). Qualitative data collected from parents also indicated that they observed positive outcomes and perceived CCPT to be beneficial to their children. Mixed results of this study posed an important question for future inquiry - whether CCPT is effective for children with autism across levels of cognitive and verbal functioning. Additionally, based on this study, Ware Balch & Ray (2015) suggested a limitation regarding assessment measures for autistic children. The SEARS may not be an effective measure of autistic children's changes due to its neurotypical normative sampling. In order to capture treatment effects across time, the researchers recommended additional measurements in a future study.

Salter et al. (2016) attempted to explore the effects of CCPT on social-emotional growth with children on the autism spectrum. Participants of this study attended ten weekly individual CCPT sessions. Researchers collected data at pre- and post-experiment time to measure participants' changes in their social and emotional growth. As a result of CCPT, all three children demonstrated improvement in domains of social emotional growth. The researchers

noted that the research design is a single case design, however, when the research method was reviewed, it appeared that although the researchers utilized the same two instruments to measure the children's global development, they identified different treatment goals (different domains of social/ emotional factors) for each of the three children. Given the differences in dependent variables and various trajectory of development among the three children, the treatment outcomes of the three samples appeared to be incomparable. Due to the differences in treatment outcome for each participant, the replicability of the results is absent. Given the limitations of research design, the level of contribution to the literature on effectiveness of CCPT with children on the autism spectrum is questionable.

In a more recent study, the relationship between treatment adherence and treatment outcome in child-centered play therapy with autistic children was reviewed (Goodman et al., 2015). In a single-case study that was conducted over two years, session data was collected from two play therapists who worked with the same client. Therapist 1 provided weekly sessions to the child in the first year, and therapist 2 provided weekly sessions to the child in the second year. The researchers applied simulation modeling analysis (SMA) to the treatment process to determine how symptoms of High-Functioning ASD (HFASD) that manifested in play therapy are related to the therapeutic alliance, the rupture/repair process, and treatment adherence. Three key findings from this study are: (a) sequential relations differ by therapist with the same client; (b) therapeutic ruptures can have an unexpected effect on autism symptoms; and (c) autism symptoms may precede or follow changes in process variables such as adherence to treatment protocol. Although this study was not directly related to CCPT outcome, this research suggested that future studies in CCPT with autistic children shall consider the relationship factors and specific treatment modifications in CCPT between the play therapist and the child.

In addition to the Ware Balch and Ray's (2015) study, the first randomized controlled trial (RCT) on CCPT for children diagnosed with autism was recently conducted by Schottelkorb and colleagues in 2020. This study yielded promising results indicating that children ($n = 23$) who participated in 24 sessions of CCPT showed a statistically significant decrease in ASD core symptoms and behavioral symptoms, compared to children in the control group. Researchers utilized two assessments to measure outcomes. The Social Responsiveness Scale-2nd Edition (SRS-2; Constantino, 2012) was used to evaluate changes in core symptoms of autism spectrum disorder, and the Child Behavior Checklist (CBCL; Achenbach and Rescorla 2000, 2001) was used to measure behavioral symptoms, including externalizing problems, attention problems, and aggression. The findings from this study further supported the use of CCPT as a holistic intervention to improve children's social functioning and reduce their emotional and behavioral problems, such as externalizing behavior, attention deficit disorder, and aggression. However, because of a small sample size and the lack of follow up study, Schottelkorb and colleagues called for future research with a larger sample size, with more diverse samples, and a 1-year follow-up.

Qualitative Inquiry of CCPT with Autistic Children

The increasing body of quantitative research is complemented by qualitative studies that examine play therapists' clinical experience working with the autism populations (Overley et al., 2018) as well as the qualitative outcomes of CCPT with children on the autism spectrum (Carrizales, 2015).

Overley and colleagues (2018) interviewed 10 registered play therapists (RPT) and registered play therapist-supervisors (RPT-S) to understand their perceptions of using CCPT with children diagnosed with autism. Data analysis yielded three themes: (a) CCPT is effective;

(b) CCPT fits the needs and characteristics of children diagnosed with autism; and (c) parents of children diagnosed with autism want to be more involved. Play therapists participated in this study highlighted CCPT environment, marked by consistency, structure, and neutrality conveys safety for children on the spectrum to relax and move toward authentic and less restrictive ways of being. The relationship between play therapist and child was seen as a pivotal agent of change; and development of a reciprocal relationship was experienced by play therapists as an indicator of progress.

Overley's research team also reported play therapists described the importance of the therapist's role. Play therapists recounted therapist-child interactions that contributed to the clients' growth. For example, the use of tracking, unconditional positive regard, and being present are paramount. Finally, participants of this study reported they value the relationship with parents of their autistic clients. Therapists reported a sense of responsibility to support not only the child client, but also the family system. Findings from Overley et al.'s (2018) study are supportive to existing quantitative research that play therapists experience CCPT as a beneficial intervention for children on the autism spectrum.

Overley et al.'s (2018) study also provided descriptive information on the process of play therapy and the therapist-child relationship as reported by play therapists. CCPT with children on the autism spectrum is likely to be more effective when play therapists involve parents as part of the intervention process. Additionally, the majority of participants conducted only CCPT with autistic clients. Three participants discussed the need to adapt their CCPT practices. One included sensory toys, one facilitated transitional activities, and one used prescriptive skills. Findings indicated that empirical research is needed to determine whether toys and skills should be modified for autistic children.

Carrizales (2015) identified a research gap regarding the impact of participation in play therapy on the relational skills and emotional development of autistic children. The researcher explored the CCPT process of three children (two boys and one girl aged six to seven years old) who participated in 16 twice-weekly sessions. Based upon the data collected through parent interviews, participation observations, weekly parent probes, and expert supervision, Carrizales concluded that young children on the autism spectrum experienced positive growth throughout their participation in CCPT. Within CCPT sessions, all three participants demonstrated improved skills including more natural play, increased communicative behaviors, and increased social engagement. This development coincided with a reduction in self-soothing behaviors within the playroom.

Despite the variation in the degree of improvement between participants, the results indicate that participants demonstrated improvement in social engagement, autonomy, academic participation, emotional state, and sensory/repetitive behaviors, among other areas. Particularly with changes related to their emotional states, two participants increased happiness and individually expressed their positive mood in a short phrase. One participant increased emotional regulation, and reduced tantrums and anger. Moreover, all three children became more aware of and more able to participate in their usual home and home environment in various ways, such as increased social initiation, verbal exchanges, and interacting with peers and family. Among the three participants, two displayed greater changes in play skills as they progressed through the stages of play, whereas one displayed less change. Carrizales noted the findings from this study supported the CCPT theory that autistic children may increase their intrinsic motivation and experience a state of self-healing power when they are provided a safe, accepting environment in

which they can interact with their external world in a more natural, intimate, and free manner (Carrizales, 2015).

In summary, this section explored the compatibility of the CCPT theoretical framework with the needs of autistic children. I also reviewed the research on CCPT with autistic children and identified positive findings based on multiple case studies, quantitative studies and qualitative studies. A growing body of quantitative and qualitative research supports the use of CCPT as an autism intervention that promotes social and emotional well-being. However, empirical evidence of CCPT for autistic children remained limited.

Conclusion of Literature Review

Increasing autism diagnoses and identifications have led to a growing demand for appropriate intervention. Along with autism-specific characteristics such as stereotypic behavior and difficulties with interpersonal communication, autistic children frequently present with co-occurring emotional and behavioral challenges such as irritability, noncompliance, and hyperactivity. These emotional and behavioral problems may further impede autistic children's learning and social development in multiple settings. Without appropriate social-emotional intervention, autistic children and their families may suffer from long-term negative outcomes such as physical harm, the development of mental disorders, and poor quality of life.

Currently, behavioral interventions adhering to the principles of ABA are considered evidence-based practice for autism intervention given its effective in increasing developmental skills and reducing autistic behaviors. A systematic review of evidence-based autism interventions, however, revealed a lack of attention to mental health interventions for autistic children. Behavioral interventions are also criticized by scholars and researchers across multiple fields because of insufficient evidence of generalization of skills and long-term positive

outcomes, lack of research on social-emotional and relational outcomes, negative effects on self-determination and self-esteem, as well as the fundamental philosophical conflict with the neurodiversity movement. Recent national survey further indicated potential underutilization of psychological interventions given the high probability of emotional and behavioral problems among autistic children.

CCPT is a mental health intervention that has demonstrated an ability in strengthening children's self-regulation in the classroom, as well as reducing externalizing problems and improving social skills. In CCPT, a play therapist provides opportunities for children to develop increased levels of empathy as well as increased self-regulation. When children are able to develop their self-regulation and empathy, they may increase their conflict management in the classroom, social skills, and decrease their acting out behaviors as a result. Additionally, in CCPT, it is expected that children will reduce levels of irritability and hyperactivity and increase cooperation after participation in play therapy.

Early research on play therapy with autism populations has revealed limitations, including small sample sizes and restricted external validity. In the more recent empirical studies (Ware Balch & Ray, 2015; Schottelkorb et al., 2020), the researchers utilized more rigorous research designs to examine the effectiveness of CCPT with autistic children. In these studies, children who participated in CCPT reported improvement in attachment-related behaviors and social interactions. However, the efficacy of CCPT as a social-emotional intervention for autistic children is yet to be adequately established due to insufficient empirical support. In this regard, researchers identified the need for research evaluating the effects of CCPT on autistic children across the spectrum, at different levels of intervention.

APPENDIX B
DETAILED METHODOLOGY

The purpose of the current study was to examine the relationships between Child-Centered Play Therapy (CCPT) and the emotional and behavioral problems of children on the autism spectrum. To explore the correlations between participation in CCPT and changes in emotional and behavioral problems in children on the autism spectrum, I conducted a repeated measures study. By utilizing a within-subject design, I investigated the growth in the participants at different stages of their CCPT intervention. In this section, I address the methodology for this study including the research questions, operational definitions, participants, instruments, procedures, analysis of data, and limitations of the study.

Research Questions

This study sought to answer two research questions regarding the impact of CCPT on emotional and behavioral problems in autistic children. The first research question was: What is the relationship between number of CCPT sessions and changes in autistic child participants' social-emotional competencies as reported by teacher? The second research question was: What is the relationship between number of CCPT sessions and changes in autistic child participants' emotional and behavioral problems, including Irritability, Social Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech, as reported by teacher? Specifically, I compared participants' severity of emotional and behavioral problems before and after participation in 8, 12, and 16 sessions of CCPT.

Operational Definitions

To clarify the constructs involved in this study, I include the definition and measurement of each construct, including children on the autism spectrum, social-emotional competencies, emotional and behavioral problems, and CCPT.

Children on the Autism Spectrum

For this study, *Children on the Autism Spectrum* was operationally defined as school-aged children who were evaluated in accordance with the Individual with Disabilities Education Act (IDEA) §300.304 through 300.311 as having autism; or children who received an autism spectrum disorder (ASD) diagnosis in accordance with the *DSM-5* (APA, 2013) by a mental health professional or physician.

Social-Emotional Competencies

Based on the Social-Emotional Assets and Resilience Scales (SEARS; Merrell, 2011), social-emotional competencies were defined as the adaptive characteristics that are crucial for children's success at school, with peers, and in the outside world. These characteristics include friendship skills, empathy, interpersonal skills, social support, problem-solving, emotional competence, social maturity, self-concept, self-management, social independence, cognitive strategies, and resilience (Merrell, 2011, p. 3). Merrell (2011) operationalized social-emotional competencies in areas of self-regulation, responsibility, social competence, and empathy. For this study, *Social-Emotional Competencies* was operationally defined as the total scores on the SEARS-Teacher forms.

Emotional and Behavioral Problems

For this study, *Emotional and Behavioral Problems* was operationalized using the five subscales' scores on the Aberrant Behavior Checklist-Second Edition Community Form (ABC-2; Aman & Singh, 2017), including Irritability, Social Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech.

Child-Centered Play Therapy (CCPT)

Landreth (2012) defined *child-centered play therapy* as “a dynamic interpersonal relationship between a child (or person of any age) and a therapist trained in play therapy procedures who provides selected play materials and facilitates the development of a safe relationship for the child (or person of any age) to fully express and explore self (feelings, thoughts, experiences, and behaviors) through play, the child’s natural medium of communication, for optimal growth and development (p. 11)”. For this study, CCPT was operationalized according to the manualized treatment protocol outlined by Ray (2011).

Participants

Given the uniqueness and clinical criteria of the research population, I adopted a convenience sampling approach to recruit participants in school settings to increase probability to reach potential participants. I obtained approval from Institutional Review Board (IRB) before participant recruitment. Participants were recruited from two Title-I elementary schools in the southwestern United States. Specified by the U.S. Department of Education (2018), Title-I schools are those receiving federal financial assistance and at least 40% of their enrollment is comprised of children from economically disadvantaged families. Data collection was conducted in Spring 2022 and Fall 2022. Table B.1. lists the demographic information of the two schools based on student information provided by Texas Education Agency (TEA, 2022). Over 72.3% and 79.5% of the students in School A and School B were considered economically disadvantaged. Among the participants, 52.6% received free or reduced lunch.

Table B.1
Demographics of Schools (N =19)

	School A	School B
Social		
Economically Disadvantaged	79.5%	72.3%
Ethnicity		
African American	9.8%	22.9%
Hispanic	70.5%	41.7%
White	18.2%	28.2%
American Indian	0.2%	0.6%
Asian	0.6%	2.1%
Pacific Islander	0.0%	0.2%
Two or More Races	0.8%	4.3%
Number of Participants	13	6

Autistic children who participated in the study were referred by school counselors and teachers. I obtained informed consent from parents and teachers before screening of participants began. The criteria for inclusion included the following: (a) Children were between the ages of 5 years 0 months and 9 years 11 months old; (b) Children were currently receiving school services related to autism diagnosis or previously received an autism spectrum disorder (ASD) diagnosis in accordance with the DSM-5 (APA, 2013) by a mental health professional or physician; (c) Children scored in the At Risk or High Risk range on the total score of the Social Emotional Assets and Resilience Scales (SEARS) or children’s score for one or more of the subscales on the Aberrant Behavior Checklist-Second Edition (ABC-2) was above 50th percentile; (d) Children’s teacher consented to participate and complete assessments; (e) Children did not receive additional mental health services during their participation in the study. Given that children on the autism spectrum typically receive multidisciplinary treatment (Monz et al., 2019; Shoaib et al., 2022), children were eligible to participate in the study if they were receiving adjunct services including occupational therapy, speech and language therapy, or behavioral

intervention. A priori power analysis using G*Power software determined that a minimum sample of 24 participants would be necessary to find a statistical difference within the group over time (four points of data collection). G*Power calculation was based on alpha level .05, minimum power established at .80, and a medium treatment effect size ($f = .25$) based on Cohen's (1992) guidelines.

In total, 22 autistic children were recruited, however, one child relocated during the semester, and two children had inconsistent school attendance resulting in participation of less than 13 sessions of CCPT. A total of 19 participants were included in the final study. Of the participants, 18 (94.7%) were educationally placed in autism classrooms, and one (5.3%) was placed in general education classroom with special education services. Parents identified participant demographics. Participants were between the ages of 5 and 8.25 years old ($M = 6.22$, $SD = 0.91$). When asked about gender, parents reported participants identified 78.9% male ($n = 15$) and 21.1% female ($n = 4$). When asked about race and ethnicity, parents reported participants racial identities were 10.5% African American ($n = 2$), 5.3% Asian American, Sri Lankan ($n = 1$), 21.1% Black ($n = 4$), 21.1%, Hispanic ($n = 4$), 5.3% Hispanic/White ($n = 1$), 31.6% White ($n = 6$), and 5.3% White, one quarter Thai ($n = 1$). Parent-identified demographic characteristics of participants are listed in Table B.2.

Additionally, parents reported clinical characteristics of participants. Participants' levels of impairment of functioning due to autism were indicated as 15.8% mild ($n = 3$), 42.1% moderate ($n = 8$), 26.3% severe ($n = 5$), and 15.8% unspecified ($n = 3$). Of 19 participants, 11 (57.9%) presented with mild to severe intellectual disability, 7 (36.8%) presented with no intellectual disability, and one participant's (5.3%) intellectual ability was unknown ($n = 1$). All participants presented with speech and language impairment, 17 (89.5%) experienced moderate to

severe impairment. Based on parent and teacher report, 5 participants (26.3%) were non-speaking, 3 (15.8%) were minimally verbal, 5 (26.3%) used echolalia, and 6 (31.6%) had some form of speech. Parents also reported other conditions such as physical disability, seizures or epilepsy, and chronic sleep problems. In terms of adjunct services received, 16 participants (84.2%) received speech and language therapy, 8 (42.1%) received behavioral intervention (ABA), 4 (21.1%) received occupational therapy, and 1 (5.3%) received life skills training. Parent-identified clinical characteristics of participants are listed in Table B.3.

Table B.2

Parent-identified Demographic Characteristics of Participants (N =19)

Demographic Characteristics	n	%*
Gender		
Female	4	21.1
Male	15	78.9
Race/ethnicity		
African American	2	10.5
Asian American, Sri Lankan	1	5.3
Black	4	21.1
Hispanic	4	21.1
Hispanic/White	1	5.3
White	6	31.6
White, one quarter Thai	1	5.3

Note: *Percentage round up to one decimal

Table B.3

Parent-identified Clinical Characteristics of Participants (N =19)

Clinical Characteristics	n	%
Impairment of Functioning Due to Autism		
Mild	3	15.8
Moderate	8	42.1
Severe	5	26.3
Unspecified	3	15.8
Intellectual Disability		
None	7	36.8
Mild	4	21.1
Moderate	6	31.6
Severe	1	5.3
Unknown	1	5.3
Speech and Language Impairment		
Mild	2	10.5
Moderate	9	47.4
Severe	8	42.1
Other Conditions		
Hearing Impairment	0	0
Visual Impairment	1	5.3
Physical Disability	3	15.8
Seizures or epilepsy	2	10.5
Chronic sleep problems	9	47.4
Gastrointestinal (GI) issues	3	15.8
Other Medical conditions	2	10.5
Classroom Type	n	%
Autism Spectrum	18	94.7
Regular/ General	1	5.3
Adjunct Services		
Behavioral Intervention (ABA)	8	42.1
Speech and Language Therapy	16	84.2
Occupational Therapy	4	21.1
Life Skills Training	1	5.3
Others	0	0

Note: *Percentage round up to one decimal

Instruments

To obtain a holistic understanding of child participants' progress in CCPT over different treatment phases, I utilized both a strength-based assessment and a behavioral checklist to collect data from participants. Both instruments are standardized assessments. Additionally, I developed a demographic questionnaire to collect participants' demographic information. Parents/guardians completed the demographic questionnaire pre-intervention. Previous CCPT research demonstrated that beneficial outcomes emerged from eight to 10 sessions, with statistically significant results demonstrated at 11 sessions or more (Ray, 2008). To assist with the evaluation of children's progress over time, teachers completed the SEARS-T and ABC-2 at pre-intervention, between 7th and 8th sessions, between 11th and 12th sessions, and at post-intervention. Below are detailed descriptions of each instrument.

Demographic Questionnaire

Parents/guardians completed a demographic questionnaire containing open-ended and multiple-choice questions. The questionnaire included questions about the child's age, gender, race/ethnicity, current autism services, and parent/guardian contact information. The demographic questionnaire is attached in Appendix E.

Social-Emotional Assets and Resilience Scales™ (SEARS)

The Social Emotional Assets and Resilience Scales™ (SEARS) is a multi-informant, strength-based, social-emotional assessment system that measures positive social-emotional attributes of children and adolescents from 5 to 18 years (Merrell, 2011). Merrell stated four purposes of the SEARS, including i) to assess, evaluate and aid decision-making and intervention planning for individual student; ii) to conduct screening for individual or groups of students; iii) to monitor intervention progress which provide data to determine effectiveness of

social-emotional interventions; and iv) to conduct applied research on child and adolescent social and emotional areas such as measuring effectiveness of social and emotional learning interventions or psychometric validation of another assessment tool (p. 6). The SEARS assesses social-emotional skills and assets including the child's empathy, coping skills, problem solving skills, peer relationship and other competencies. Benefits of a strength-based approach include a higher social validity with raters (parents, teachers, students) and reduction of stigmatization. It also allows clinicians to identify resources and protective factors within and around individuals and promote mental health and wellbeing (Nese et al., 2012).

SEARS forms can be completed by self, teacher, and parent using specific rating scales: SEARS-Child (SEARS-C), SEARS-Adolescent (SEARS-A), SEARS-Teacher (SEARS-T), and SEARS-Parent (SEARS-R). In this study, I utilized the SEARS-T. The administration time for SEARS is around 10-15 minutes. SEARS-T has 41 items and includes the following four subscales: Self-Regulation (SR), Social Competence (SC), Empathy (E), and Responsibility (R). Items are rated on a 4-point scale ranging from never (0), sometimes (1), often (2), or always (3). Since SEARS-T can be administered without a restriction on the interval between administrations, it is ideally suited for the current study using repeated measures.

Psychometric properties of SEARS-T indicated strong reliability of the measurements. Merrell (2011) reported the internal consistency coefficient for the SEARS-T total score as .98, and the internal consistency reliability coefficients for the subscales as: Self-Regulation ($\alpha = .95$), Social Competence ($\alpha = .94$), Empathy ($\alpha = .91$), and Responsibility ($\alpha = .95$). Results of a 2-week test-retest study of SEARS-T indicated very strong test-retest coefficients ranging from .84 to .94.

Children's scores that fall in the 6th to 20th percentile are considered to be At Risk of low socio-emotional competencies and are considered at High Risk with scores that fall in the 5th percentile or below. SEARS scores in the High Risk range are likely to indicate significant deficits in learning and demonstrating skills of social competence, self-regulation, empathy, or responsibility. According to Merrell (2011), children who score in the At Risk range should be assessed for emerging social-emotional deficits and may consider social-emotional learning interventions. And children receiving SEARS total scores or one or more scale scores in the High Risk range should be evaluated further and participate in carefully designed individualized interventions.

Aberrant Behavior Checklist Second Edition (ABC-2)

The Aberrant Behavior Checklist (ABC) is a widely used measure in autism treatment studies (Kaat et al., 2014). The ABC second edition community form (ABC-2) is a 58-item rating scale assessing behavior difficulties in individuals with developmental delays. Items are rated on a 4-point rating scale (0 = not at all a problem, 1 = the behavior is a problem but slight in degree, 2 = the problem is moderately serious, 3 = the problem is severe in degree). The ABC-2 subscales are designated as I) Irritability, II) Social Withdrawn, III) Stereotypic Behavior IV) Hyperactivity/ Noncompliance, and V) Inappropriate Speech. The administration time for ABC-2 is around 10-15 minutes.

ABC was originally developed to measure outcomes of pharmacological and behavioral intervention among individuals with severe developmental disabilities. Aman and Singh (2017) regarded ABC as "the pivotal outcome measure" for its sensitivity to drug effects and behavioral intervention for children and adults with intellectual and developmental disabilities (p.33-34). Moreover, ABC's behavior rating does not require spoken language, making it an ideal tool for

assessing treatment effectiveness for children with severe developmental disabilities (Fok & Bal, 2019). Miller et al. (2004) evaluated the use of ABC among six other rating scales in 48 children in a special education setting and reported very good reliability with the ABC. Miller et al. concluded “The ABC-C was the only measure on which the interrater reliability was adequate for clinical purposes” (p. 459). In terms of test-retest reliability, Aman and Singh (2017) summarized results of seven studies and reported 78% of the reliability coefficient of the subscales are between .75 and 1.00, indicating excellent clinical significance; 15% of the reliability coefficient of the subscales are between .60 and .74, indicating good clinical significance; 7% of the reliability coefficient of the subscales are between .40 and .59, indicating fair clinical significance.

Since its establishment in 1985, ABC has been used in multiple treatment outcome studies with the autism population (Research Units on Pediatric Psychopharmacology [RUPP], 2002; 2005a; 2005b). The ABC irritability subscale was used as a measurement in multiple pharmacological studies for children who had autistic disorder accompanied by severely disruptive behavior (defined by a parent-rated score of 18 or greater on the irritability subscale of the ABC) (Owen et al., 2009; Marcus et al., 2009). Multiple researchers support the appropriate use of ABC with autistic children and adolescents given adequate reliability and validity of ABC-2 in assessing behavioral problems in large autism samples (see Brinkley et al., 2007; Kaat et al., 2014). Kaat and colleagues (2014) conducted exploratory and confirmatory factor analyses on ABC using a heterogeneous autism sample ($n = 1,893$). Kaat et al. reported 52 of 58 items (90 %) of ABC continued to load primarily on their originally assigned factors. Analytical results also indicated good to excellent internal consistency for factors in both EFA and CFA samples: Irritability $\alpha = .92, .92$; Social Withdrawal $\alpha = .88, .89$; Stereotypic Behavior $\alpha = .87, .85$;

Hyperactivity/Noncompliance $\alpha = .94, .93$. An acceptable level of internal consistency ($\alpha = .77, .77$) was reported for Inappropriate Speech. These findings demonstrated robust results of the factor structure of ABC among autistic children and adolescents. Correlations between the ABC subscales and external variables of the Child Behavior Checklist (CBCL; Achenbach and Rescorla 2000, 2001) and demographic variables supported the convergent and divergent validity of the ABC as a measure of behavior problems among individuals on the autism spectrum (Fok & Bal, 2019; Kaat et al., 2014). Although the internal consistency and correlational coefficients were not reported, Brinkley et al. (2007) reported 78% of items on the ABC are congruent in their confirmatory factor analysis (CFA) using a sample of 275 participants on the autism spectrum.

Aman & Singh (2017) emphasized that each subscale score of ABC has a high construct validity ($\alpha = .76 - .96$, $r_c = .85 - .94$) and advised against the interpretation of total score of ABC-2. Therefore, I used all the five subscales independently in analyses to determine change of emotional and behavioral problems in the participants. Based on Kaat et al.'s (2014) study, the parent-rated subscale mean scores and standard deviations for a normative sample of 6-12 year old autistic children (collapsed over IQ groups; $n = 604$) are as follows: Irritability ($\bar{x} = 11.8$, $SD = 9.3$), Social Withdrawal ($\bar{x} = 9.4$, $SD = 7.1$), Stereotypic Behavior ($\bar{x} = 4.6$, $SD = 4.2$), Hyperactivity/Noncompliance ($\bar{x} = 17.3$, $SD = 1.9$), and Inappropriate Speech ($\bar{x} = 3.9$, $SD = 2.9$).

Procedures

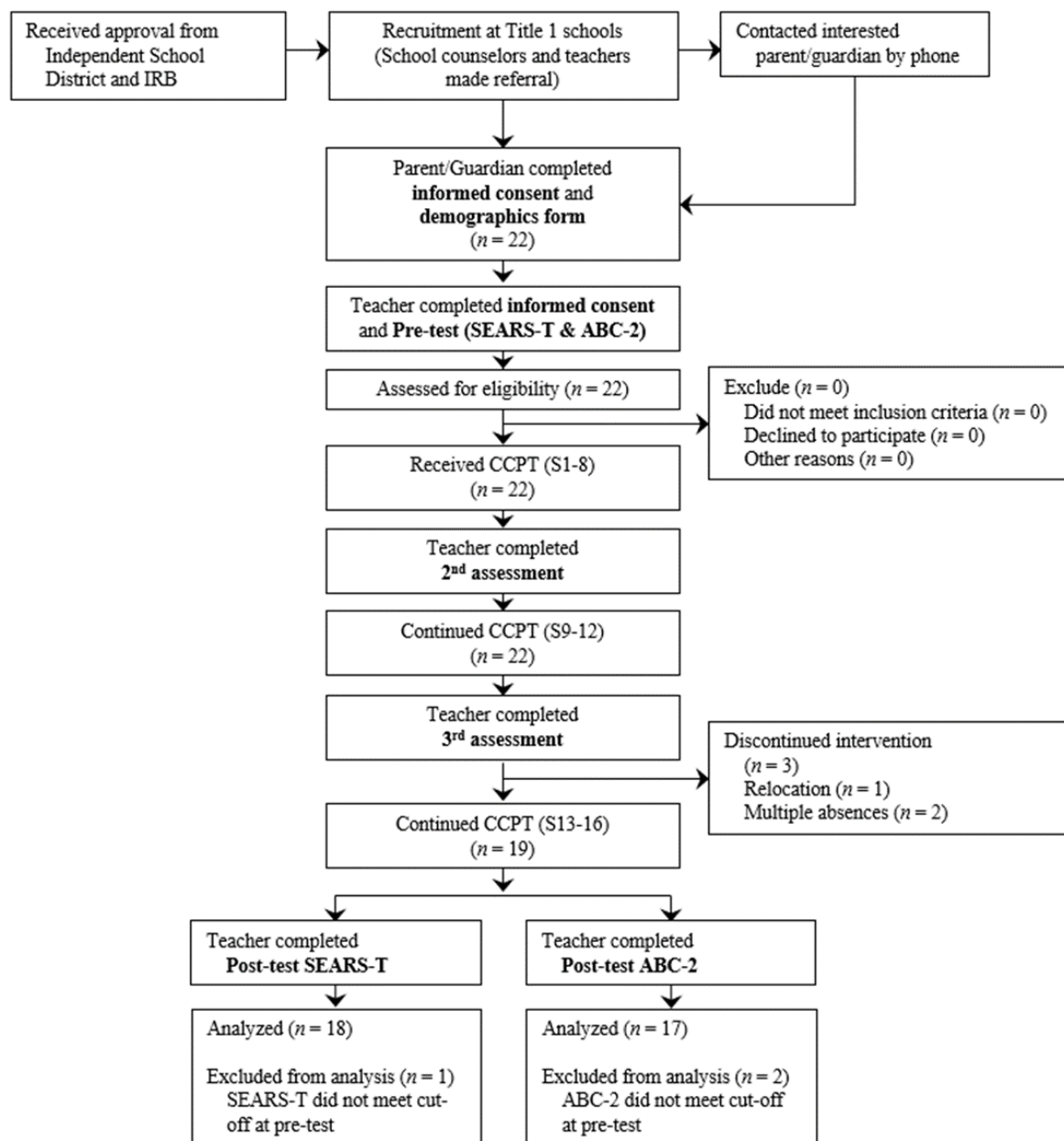
Recruitment

Figure B.1 illustrates the procedures and intervention of the current study. I recruited participants upon approval from Independent School District and the University of North Texas

Institutional Review Board (IRB) (see Appendix E). I met with the school counselors in each school to explain the parameters of the study. The school counselors then worked with teachers to identify children who received an autism diagnosis and were receiving services related to autism.

Figure B.1

Research Procedures and Treatment



After potential participants were referred by teachers or school counselors, I contacted the parents/guardians to identify their interest in taking part in the study. Confidential envelopes were sent to parents/guardians, containing a letter explaining the purpose and benefits of CCPT, informed consent and demographic questionnaire (see Appendix E). Next, I arranged follow-up phone calls with interested parents/guardians to review the informed consent and participant requirements. Over the phone consultation, I stated the purpose, procedures, foreseeable risks, and potential benefits of the study. I also explained the teacher assessment and screening procedures and notified parents/guardians of the possibility of not qualifying for services. Parents/guardians were informed of the voluntary nature of the study, including withdrawal at any time. For two parents who spoke languages other than English, I arranged two translators for phone calls, to ensure their understanding of the informed consent and parameter of the study.

Subsequent to receiving parental informed consent, I sent out informed consent, SEARS-T and ABC-2 to teachers and teacher's aides. I reviewed the informed consent with each teacher and teacher's aide and explained the assessments. I also explained the voluntary nature of participation. Teachers' pretests were completed prior to the beginning of CCPT treatment. I reviewed scores and results of assessments to ensure all participants met inclusion criteria.

Children who met all criteria received 16 individual CCPT sessions, which took place twice weekly and 30-minutes per session, over a period of 8-10 weeks. Due to student absences and relocation, three students only received less than 13 sessions of play therapy and were dropped from study analysis. Along with intervention, I worked with the teachers and teacher's aides to administer SEARS-T and ABC-2 between the 7th and 8th session, between the 11th and 12th session of CCPT, and upon completion of 16 sessions.

Intervention

Children participating in the current study received individual CCPT, a culturally and developmental responsive therapeutic intervention for children (Ray, 2011). The play therapist followed the treatment protocol outlined in Ray's (2011) CCPT treatment manual. CCPT posits that play is the natural language of children and children's play can serve as a medium of communication in therapeutic settings (Landreth, 2012). In CCPT, the play therapist intentionally sets up the playroom with a selection of toys and materials that facilitate the child's expressions and exploration of self and relationships (Ray et al., 2022). The play therapist establishes a facilitative relationship with children through verbal and non-verbal communications in the playroom. Therapeutic skills used in CCPT include empathic responses, returning responsibility, esteem building, facilitating relationship, therapeutic limit setting, and facilitating emotional expression (Ray, 2011). Additionally, play therapists followed Swan's (2018) recommendations of utilizing body movement imitation, object imitation, verbal imitation, facial/affect reflection, and linguistic mapping to enhance therapist-child attunement with autistic children in CCPT.

The 16 sessions of individual CCPT took place twice weekly over the course of 8-10 weeks, each session consisted of 30 minutes. Sessions were conducted in play therapy rooms within the schools to maximize accessibility of services. The play therapy rooms were designed and structured based on Landreth's (2012) and Ray et al.'s (2022) recommendations, where toys and materials are selected to allow the child's expressions, exploration, and understanding of self, environment, and relationships; and at the same time allow opportunities for developing self-control. Toys and materials included categories of real-life toys, acting-out aggressive-release toys, and toys for creative expression and emotional release (Landreth, 2012). To

accommodate the developmental delays and sensory interests of participants, I selected toys that were easy to clean, and excluded toys containing small or sharp parts. Toys and materials were regularly checked for repair. Additionally, I reduced the amount of sand in the sandbox and installed a floor mat to facilitate cleaning and transitions between sessions. In both schools, play therapy spaces were marked off by curtains hanging from the ceiling. This allowed participants to engage in play with fewer external influences within a large empty classroom. Several participants expressed anxiety and hesitancy about entering a closed-off space at the beginning of play therapy. Therefore, curtains were opened to make the play therapy space more welcoming.

Play therapists who provided CCPT in the current study were three neurotypical doctoral-level counselors who completed at least three graduate level play-therapy courses, were trained in CCPT, and agreed to adhere to the CCPT treatment manual (Ray, 2011). One play therapist identified as an Asian, Hongkongese cisgender female, one identified as a bilingual (Spanish & English) Zapotec Latina, one identified as a White cisgender female. All play therapists had previously worked with children on the autism spectrum using CCPT and received supervision on their CCPT skills for autistic children. To ensure treatment integrity, play therapists received weekly 1-hour triadic supervision from a Registered Play Therapist Supervisor (RPT-S) who is experienced in using CCPT with autistic children and has conducted research on play therapy with autistic children. During supervision, play therapists reviewed video recordings of their play therapy sessions.

Protocol adherence was assessed through fidelity checks of video-recorded sessions utilizing the Child-Centered Play Therapy-Research Integrity Checklist (CCPT-RIC; Ray et al., 2017) with two randomly selected session recordings of each participant. Following the

recommendation of Ray et al. (2017), protocol fidelity was set at 90% verbal response adherence or above according to the checklist. Fidelity checks were carried out by a trained auditor who is a licensed professional counselor, Registered Play Therapist (RPT), and doctoral counseling student experienced in using CCPT with autistic children. For the current study, protocol adherence was calculated at .99, confirming that CCPT protocol was followed.

Analysis of Data

The current study was a play therapy process-outcome correlational design, the independent variable in the current study was the time in CCPT and the dependent variables were social-emotional competencies (RQ1) and emotional and behavioral problems (RQ2). Given the nature of the research question, where I am interested in examining the differences of dependent variables within the same group over multiple occasions, an appropriate choice of analytical tool was a repeated measures ANOVA. Results of the analyses indicate if there was a significant difference among the multiple sets of scores (Pallant, 2020).

The first research question was answered by a one-way repeated measures ANOVA using the Total Score on the SEARS-T as the dependent variable. The purpose of this analysis was to determine whether number of CCPT sessions predicted autistic children's changes in social-emotional competencies. The second research question was answered by five one-way repeated measures ANOVAs using the subscale scores on the ABC-2, namely Irritability, Social Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech, as the dependent variable for each analysis. The purpose of these analyses was to determine whether number of CCPT sessions predicted autistic children's changes in emotional and behavioral problems.

Prior to running the analyses, the dataset was examined to determine if assumptions for a repeated measures ANOVA were met. Assumptions include independence of observations, multivariate normality, and homogeneity of variance (Pallant, 2020). Independence of observation refers to the requirement that each of the observations should be independent of one another, and each observation or measurement is not influenced by another observation or measurement. Multivariate normality refers to the data for each measurement occasion being normally distributed and the joint distribution of the data for all measurement occasions is normally distributed. Homogeneity of variance necessitates the differences between all combinations of related groups are similar or close to equal. Alpha was determined at .05, meaning statistical significance was determined by a p -value less than .05. Because G*Power indicated a necessary sample size of 24 participants, post power analysis was run on each ANOVA to address credible effects. After computing the repeated measures ANOVA analysis in SPSS, the output was examined to determine if there was a statistically significant difference across time of measurement. I conducted planned post hoc pairwise comparison analyses to determine the time of measurement for which significant changes occurred. Due to number of analyses conducted, the Bonferroni method was applied to account for Type 1 error.

To test for practical significance, I examined the value of multivariate partial eta squared (η_p^2) which assesses the amount of variance in the dependent variables explained or predicted by number of CCPT sessions (Tabachnick & Fidell, 2019). According to Cohen's (1988) guidelines, eta squares of .01 were interpreted as small, .06 as moderate, and .14 as large. In addition, Cohen's d effect sizes for the dependent variable were calculated to determine the magnitude of the differences between the measurement points in post hoc pairwise comparison. Effect sizes of .2 represented a small effect, .5 a medium effect, and .8 a large effect (Cohen, 1988). Lastly, I

evaluated clinical significance results by noting the change in clinical categories among participants between measurements.

APPENDIX C
UNABRIDGED RESULTS

The following results are intended to answer the two research questions of the current study. The first research question is: What is the relationship between number of CCPT sessions and changes in autistic child participants' social-emotional competencies as reported by teacher? The second research question is: What is the relationship between number of CCPT sessions and changes in autistic child participants' emotional and behavioral problems, including Irritability, Social Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech, as reported by teacher? I will present results of the data analyses, including report of statistical, practical, and clinical significance.

Research Question One

To address the first research question, a one-way repeated measures analysis of variance (ANOVA) was performed for the dependent variable, SEARS-T Total Score, to determine the impact of CCPT across four points of measurement. An increase in scores on the SEARS-T indicates improvement. Time served as the independent variable, including points of measure at the intake session and after session 8, 12 and 16. To determine statistical significance, an α level of .05 was set. Practical significance was determined by eta squared (η_p^2) and interpreted based on Cohen's guidelines (1988, p. 284–287), effect size of $\eta^2 = .01$ represents a small effect, .06 represents a medium effect, and .14 represents a large effect. Table C.1 lists the group means and standard deviations of scores.

Table C.1

Mean Scores of SEARS-T Total Scores Across Time (N = 18)

Dependent Variable		<i>M</i>	<i>SD</i>
SEARS-T Total Score	Intake	29.06	4.123
	Session 8	32.22	7.117
	Session 12	30.89	4.689
	Session 16	31.44	5.283

Notes: *M* = Mean, *SD* = Standard Deviation*SEARS-T Total Score*

The first repeated measures ANOVA assessed the impact of CCPT on participants' SEARS-T total scores at intake (time 1), after 8 sessions of CCPT (time 2), after 12 sessions of CCPT (time 3), and after 16 sessions of CCPT (time 4) as reported by teachers. Only 18 participants were included in these analyses due to one participant's SEARS-T score not meeting clinical cut-off at pre-test. The assumptions for level of measurement, independent observations, and normal distribution were all reasonably met. When examining the means of participants over time (see Fig. C.1), observation indicates a rapid increase in the average SEARS-T total score from intake to session 8, a slight decrease from session 8 to 12, and then a slight increase from session 12 to 16. Results indicate an increase in the average SEARS-T total score from intake to session 16, marking an overall improvement in participants' social-emotional competencies from intake to session 16.

Results indicate a statistically significant effect for time, Wilks' $\lambda = .589$, $F(3, 15) = 3.483$, $p = .043$, $\eta_p^2 = .411$, observed power = .658. Thus, there was a statistically significant correlation between time and increase in the SEARS-T total scores, and 41.1% of the improvement could be explained by increased time in CCPT. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred (see Table C.2). Cohen's d was

calculated for each statistically significant difference. Statistically significant differences were found between time points 1 and 4 with a large effect ($p = .045$, $d = 1.61$). In summary, participants demonstrated a statistically significant improvement in social-emotional competencies between intake and after 16 sessions of CCPT for 1.61 standard deviations, with a large effect.

Figure C.1

Means over time on SEARS-T Total Score

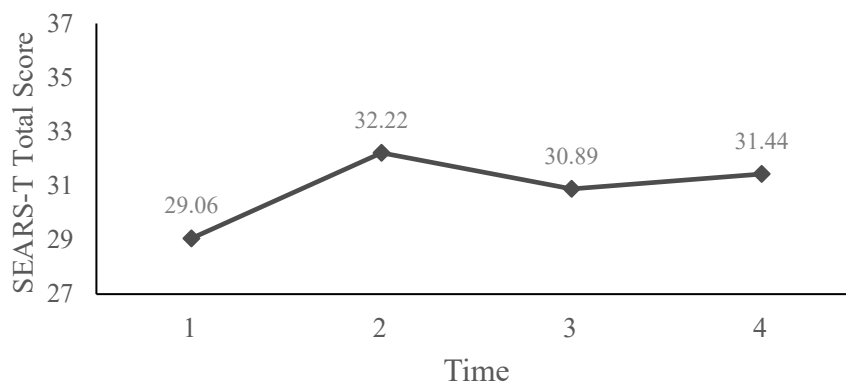


Table C.2

Pairwise Comparisons for SEARS-T Total Scores (N = 18)

Time (I)	Time (J)	Mean Difference (I-J)	Std. Error	Sig.
1	2	-3.167	1.097	.062
	3	-1.833	.711	.117
	4	-2.389	.789	.045*
2	1	3.167	1.097	.062
	3	1.333	.816	.725
	4	.778	.979	1.000
3	1	1.833	.711	.117
	2	-1.333	.816	.725
	4	-.556	.751	1.000
4	1	2.389	.789	.045*
	2	-.778	.979	1.000
	3	.556	.751	1.000

Note. * indicates statistical significance at $p < .05$.

Because a statistically significant result was obtained, post-hoc analyses of the SEARS-T subscale scores (Self-Regulation, Social Competence, Empathy, Responsibility) were conducted by separate repeated measures ANOVA to determine in which area(s) of social-emotional competencies difference in scores occurred (see Table C.3)

Table C.3

Mean Scores of SEARS-T Subscale Scores Across Time (N = 18)

SEARS-T Subscales		<i>M</i>	<i>SD</i>
Self-Regulation (SR)	Intake	31.89	2.193
	Session 8	34.00	4.485
	Session 12	32.06	2.043
	Session 16	32.78	2.819
Social Competence (SC)	Intake	32.83	5.238
	Session 8	35.94	7.215
	Session 12	35.56	6.501
	Session 16	36.50	6.483
Empathy (EM)	Intake	27.50	3.148
	Session 8	33.17	7.595
	Session 12	31.56	6.373
	Session 16	32.17	6.956
Responsibility (RE)	Intake	32.17	6.688
	Session 8	34.11	8.138
	Session 12	32.89	5.086
	Session 16	32.83	5.914

Notes: *M* = Mean, *SD* = Standard Deviation

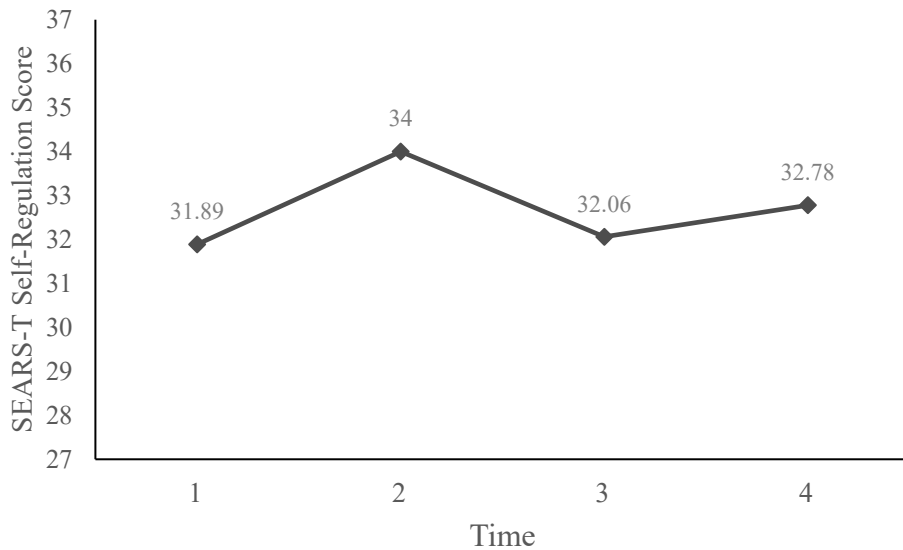
Self-Regulation (SR) Subscale.

A repeated measures ANOVA was conducted to assess the impact of CCPT on participants' Self-Regulation (SR) scores across time as reported by teachers. The assumptions for level of measurement, independent observations, and normal distribution were all reasonably met. When examining the means of participants over time (see Fig. C.2), observation indicates an increase in the average SR score from intake to session 8, a slight decrease from session 8 to

12, and then a slight increase from session 12 to 16. Results indicates an increase in the average SR score from intake to session 16, marking a trend of improvement.

Figure C.2

Means over time on Self-Regulation Subscale Score



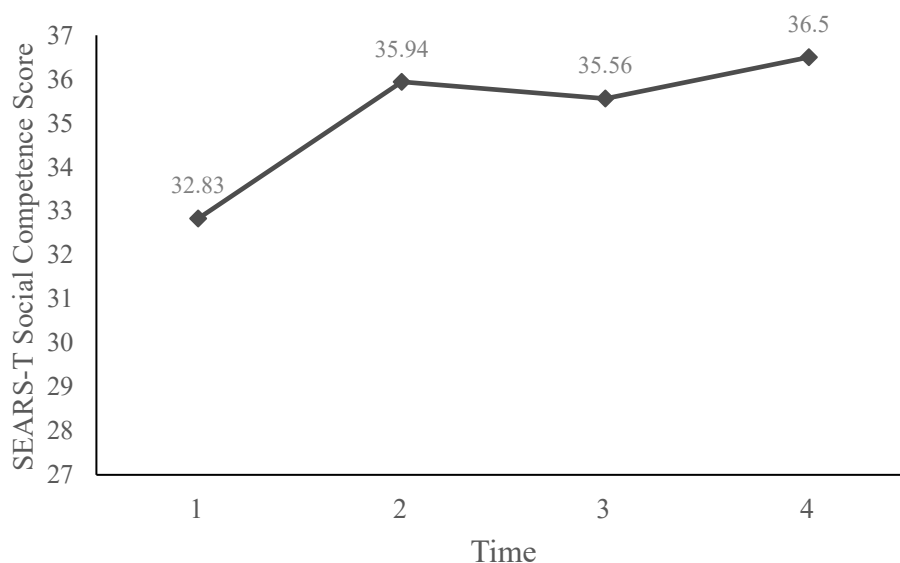
Result of repeated measures ANOVA indicates a statistically insignificant effect for time, Wilks' $\lambda = .669$, $F(3, 15) = 2.474$, $p = .101$, $\eta_p^2 = .331$, observed power = .499. Thus, there was a statistically insignificant correlation between time and teacher-reported improvement in participants' self-awareness, meta-cognition, intrapersonal insight, self-management, and direction. However, the partial eta squared indicated a large effect size as interpreted by Cohen's (1988) criteria. This may indicate that the study was underpowered, or the sample size was not sufficient to detect statistically significant differences, and that future exploration of the impact of CCPT on self-regulation may be appropriate. Due to statistically insignificant results, I did not conduct a pairwise comparison analysis.

Social Competence (SC) Subscale.

A repeated measures ANOVA was conducted to assess the impact of CCPT on participants' Social Competence (SC) scores across time as reported by teachers. The assumptions for level of measurement, independent observations, and normal distribution were all reasonably met. When examining the means of participants over time (see Fig. C.3), observation indicates a sharp increase in the average SC score from intake to session 8, a slight decrease from session 8 to 12, and then an increase from session 12 to 16. Results indicate an increase in the average SC score from intake to session 16, marking an overall improvement.

Figure C.3

Means over time on Social Competence Subscale Score



Result of repeated measures ANOVA indicates a statistically significant effect for time, Wilks' $\lambda = .520$, $F(3, 15) = 4.613$, $p = .018$, $\eta_p^2 = .480$, observed power = .789. Thus, there was a statistically significant correlation between time and teacher-reported improvement in participants' ability to maintain friendships with peers, engage in effective verbal communication, and feel comfortable around groups of peers, with a large effect. Because a

statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred (see Table C.4). Cohen's d was calculated for each statistically significant difference. Statistically significant differences were found between time points 1 and 2 with a small to medium effect ($p = .043$, $d = .49$), 1 and 3 with a small to medium effect ($p = .053$, $d = .46$), 1 and 4 with a medium to large effect ($p = .012$, $d = .62$). In summary, participants demonstrated statistically significant improvement in social competence after session 8 and after session 12, with a small to medium effect, while a statistically significant improvement with a medium to large effect was demonstrated after 16 sessions of CCPT.

Table C.4

Pairwise Comparisons for Social Competence Scores (N =18)

Time (I)	Time (J)	Mean Difference (I-J)	Std. Error	Sig.
1	2	-3.111	1.019	.043*
	3	-2.722	.921	.053*
	4	-3.667	1.007	.012*
2	1	3.111	1.019	.043*
	3	.389	.776	1.000
	4	-.556	.937	1.000
3	1	2.722	.921	.053*
	2	-.389	.776	1.000
	4	-.944	1.024	1.000
4	1	3.667	1.007	.012*
	2	.556	.937	1.000
	3	.944	1.024	1.000

Note. * indicates statistical significance at $p < .05$.

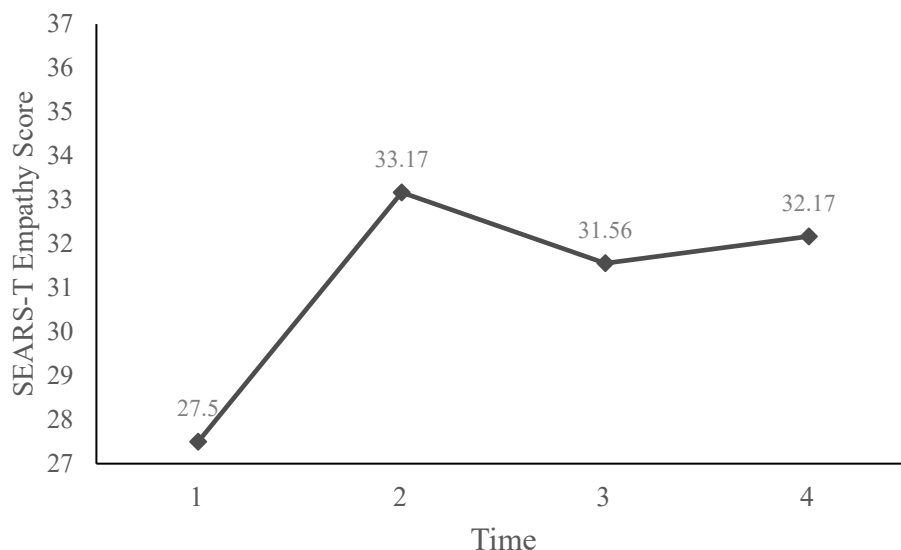
Empathy (EM) Subscale.

A repeated measures ANOVA was conducted to assess the impact of CCPT on participants' Empathy (EM) scores across time as reported by teachers. The assumptions for level of measurement, independent observations, and normal distribution were all reasonably

met. Mauchly's test of sphericity indicated the sphericity assumption was violated; however, Pallant (2020) stated that multivariate statistics do not require sphericity. When examining the means of participants over time (see Fig. C.4), observation indicates a drastic increase in the average EM score from intake to session 8, a slight decrease from session 8 to 12, and then an increase from session 12 to 16. Results indicate an increase in the average EM score from intake to session 16, marking an overall improvement.

Figure C.4

Means over time on Empathy Subscale Score



Results of repeated measures ANOVA indicates a statistically significant effect for time, Wilks' $\lambda = .547$, $F(3, 15) = 4.136$, $p = .025$, $\eta_p^2 = .453$, observed power = .740. Thus, there was a statistically significant correlation between time and teacher-reported improvement in participants' ability to empathize with others' situations and feelings, with large effect. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred (see

Table C.5). Cohen's d was calculated for each statistically significant difference. Statistically significant differences were found between time points 1 and 2 with a large effect ($p = .012$, $d = .98$), 1 and 3 with a large effect ($p = .031$, $d = .81$), 1 and 4 with a large effect ($p = .024$, $d = .87$). In summary, the improvement in empathy with large effect emerged after session 8 and lasted through session 12 to 16.

Table C.5

Pairwise Comparison for Empathy Scores (N = 18)

Time (I)	Time (J)	Mean Difference (I-J)	Std. Error	Sig.
1	2	-5.667	1.557	.012*
	3	-4.056	1.267	.031*
	4	-4.667	1.400	.024*
2	1	5.667	1.557	.012*
	3	1.611	.893	.535
	4	1.000	1.029	1.000
3	1	4.056	1.267	.031*
	2	-1.611	.893	.535
	4	-.611	.667	1.000
4	1	4.667	1.400	.024*
	2	-1.000	1.029	1.000
	3	.611	.667	1.000

Note. * indicates statistical significance at $p < .05$.

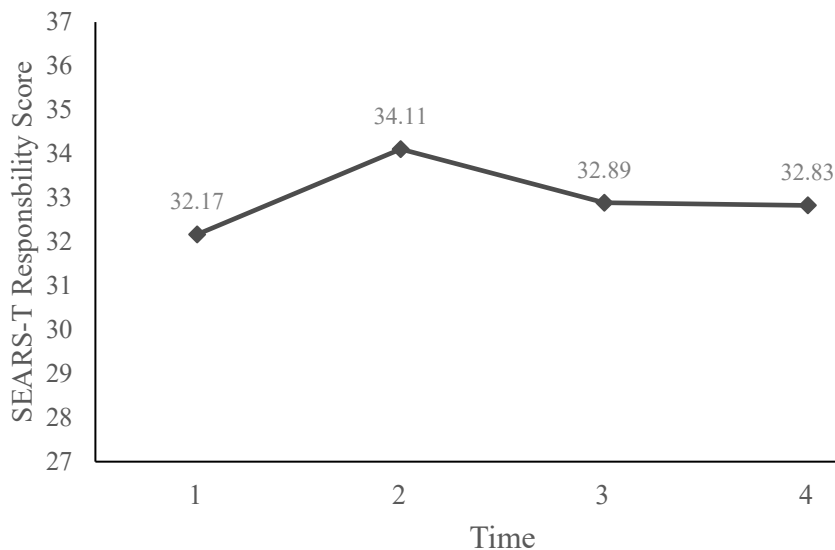
Responsibility (RE) Subscale.

A repeated measures ANOVA was conducted to assess the impact of CCPT on participants' Responsibility (RE) scores across time as reported by teachers. The assumptions for level of measurement, independent observations, and normal distribution were all reasonably met. When examining the means of participants over time (see Fig. C.5), observation indicates an increase in the average RE score from intake to session 8, a decrease from session 8 to 12, and then a slight increase from session 12 to 16. Results indicates an increase in the average RE score from intake to session 16, marking a trend of improvement.

Result of repeated measures ANOVA indicates a statistically insignificant effect for time, Wilks' $\lambda = .861$, $F(3, 15) = .810$, $p = .508$, $\eta_p^2 = .139$, observed power = .184. Thus, there was a statistically insignificant correlation between time and teacher-reported improvement in participants' ability to accept responsibility, behave conscientiously, and think before acting, with a large effect. Due to statistically insignificant results, I did not conduct a pairwise comparison analysis.

Figure C.5

Means over time on Responsibility Subscale Score



Post hoc analyses of the SEARS-T subscale score revealed that the improvement in participants' social-emotional competencies can be largely attributed to their improvement in empathy and social competence, followed by improvement in self-regulation.

Research Question Two

To address the second research question, separate repeated measures ANOVAs were conducted for each dependent variable measured by the ABC-2 including Irritability, Social

Withdrawal, Stereotypic Behaviors, Hyperactivity/ Noncompliance, and Inappropriate Speech, to evaluate the impact of CCPT across four points of measure. A reduction in scores on the ABC-2 subscales indicates improvement. Time served as the independent variable, including points of measure at the intake session and after sessions 8, 12, and 16. Additionally, clinical significance is presented in terms of percentages of clinically at-risk scores vs. average scores.

Only 17 participants were included in the analyses of the second research question due to two participants' ABC-2 subscale scores not meeting clinical cut-off at pre-intervention. Table C.6 lists the group means, standard deviations, and ranges of scores. The ranges indicated a wide spread of data among participants at each data point, suggesting participants may present different emotional and behavioral profiles. Mean scores are impacted by the variability between individual scores indicated by range values.

Table C.6

Mean Scores of Teacher-Reported Dependent Variable Across Time (N = 17)

Dependent Variable		<i>M</i>	<i>SD</i>	Range
ABC-2 Irritability	Intake	19.12	9.096	4–35
	Session 8	16.88	11.357	2–36
	Session 12	14.82	8.748	3–28
	Session 16	15.47	10.290	0–31
ABC-2 Social Withdrawal	Intake	13.76	9.523	1–38
	Session 8	10.65	9.650	2–42
	Session 12	8.76	7.067	0–23
	Session 16	5.76	4.221	0–13
ABC-2 Stereotypic Behaviors	Intake	8.12	5.957	1–21
	Session 8	6.59	6.605	0–21
	Session 12	6.76	6.180	0–20
	Session 16	6.53	6.728	0–21
ABC-2 Hyperactivity/ Noncompliance	Intake	26.71	9.054	10–39
	Session 8	23.18	10.484	5–37
	Session 12	22.06	9.852	5–35
	Session 16	20.65	9.791	4–37
ABC-2 Inappropriate Speech	Intake	5.41	3.675	0–11
	Session 8	4.47	3.538	0–11
	Session 12	4.76	3.073	0–9
	Session 16	5.00	2.872	0–10

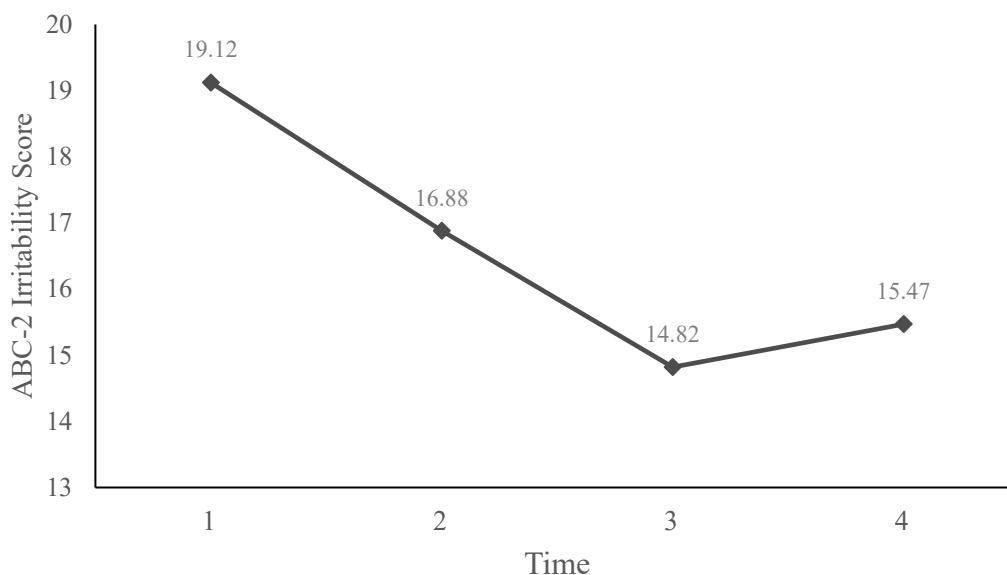
Notes: *M* = Mean, *SD* = Standard Deviation

ABC-2 Irritability

A repeated measures ANOVA was conducted to assess the impact of CCPT on Irritability subscale scores on the ABC-2 at intake (time 1), after 8 sessions of CCPT (time 2), after 12 sessions of CCPT (time 3), and after 16 sessions of CCPT (time 4) as reported by teachers. The assumptions for independence of observations, multivariate normality, and homogeneity of variance were all reasonably met. When examining the means of participants over time (see Fig. C.6), observation indicates a consistent decrease in the average ABC-2 Irritability scores from intake to session 12, and a subtle increase from session 12 to 16. The decrease in the average scores from intake to 16 sessions marked an overall improvement in children's emotional and acting-out behaviors.

Figure C.6

Means over time on ABC-2 Irritability Score



Results of repeated measures ANOVA indicate a statistically significant effect for time, Wilks' $\lambda = .542$, $F(3, 14) = 3.937$, $p = .031$, $\eta_p^2 = .458$, observed power = .71. Thus, there was a

statistically significant correlation between time and decrease in the ABC-2 Irritability scores, with a large effect size. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred (see Table C.7). Cohen's d was calculated for each statistically significant difference. Statistically significant differences were found between time points 1 and 3, approaching medium effect ($p = .034$, $d = .48$). In summary, participants started to demonstrate statistically significant decrease in features of emotional and acting-out behavior after 12 sessions of CCPT.

Table C.7

Pairwise Comparisons for Teacher-Reported ABC-2 Irritability Scores (N = 17)

Time (I)	Time (J)	Mean Difference (I-J)	Std. Error	Sig.
1	2	2.235	1.872	1.000
	3	4.294	1.347	.034*
	4	3.647	1.770	.336
2	1	-2.235	1.872	1.000
	3	2.059	1.299	.795
	4	1.412	1.797	1.000
3	1	-4.294	1.347	.034*
	2	-2.059	1.299	.795
	4	-.647	1.098	1.000
4	1	-3.647	1.770	.336
	2	-1.412	1.797	1.000
	3	.647	1.098	1.000

Note. * indicates statistical significance at $p < .05$.

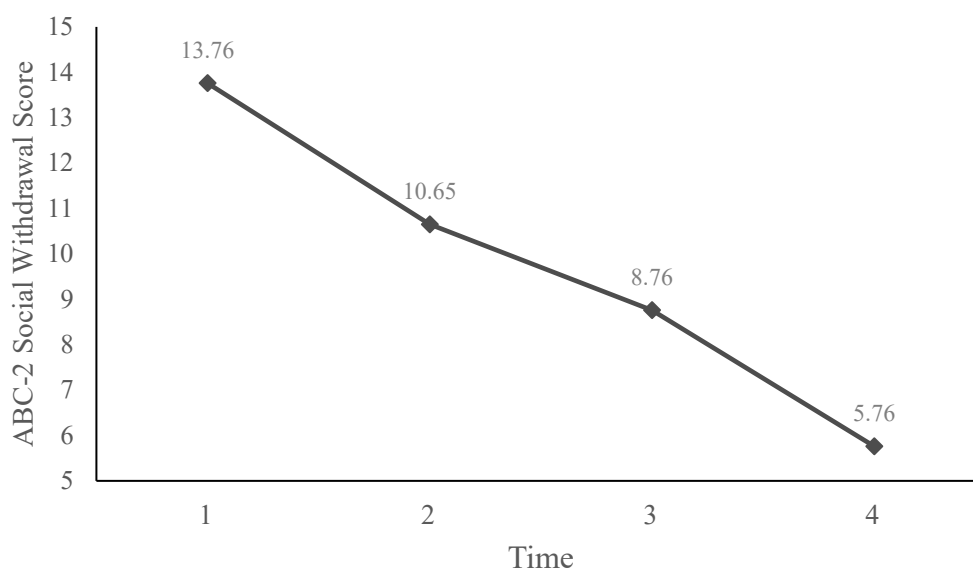
ABC-2 Social Withdrawal

The next repeated measures ANOVA assessed the impact of CCPT on Social Withdrawal subscale scores on the ABC-2 at intake (time 1), after 8 sessions of CCPT (time 2), after 12 sessions of CCPT (time 3), and after 16 sessions of CCPT (time 4) as reported by teachers. The assumptions for independence of observations, multivariate normality, and homogeneity of

variance were all reasonably met. When examining the means of participants over time (see Fig. C.7), observation indicates a consistent decrease in the average ABC-2 Social Withdrawal scores from intake to session 16, marking overall improvement in children's features of social impairments.

Figure C.7

Means over time on ABC-2 Social Withdrawal Score



Results of repeated measures ANOVA indicate a statistically significant effect for time, Wilks' $\lambda = .438$, $F(3, 14) = 5.996$, $p = .008$, $\eta_p^2 = .562$, observed power = .88. Thus, there was a statistically significant correlation between time and decrease in the ABC-2 Social Withdrawal scores, with a large effect size. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred (see Table C.8). Cohen's d was calculated for each statistically significant difference. Statistically significant differences were found between time points 1 and 3 with a medium to large effect ($p = .003$, $d = .60$), 1 and 4 with a large effect ($p = .007$, $d =$

1.09). In summary, participants demonstrated a statistically significant decrease in features of social impairment between intake and after 12 sessions of CCPT with medium to large effects; and a statistically significant improvement with a large effect was demonstrated after 16 sessions of CCPT.

Table C.8

Pairwise Comparisons for Teacher-Reported ABC-2 Social Withdrawal Scores (N =18)

Time (I)	Time (J)	Mean Difference (I-J)	Std. Error	Sig.
1	2	3.118	1.417	.257
	3	5.000	1.160	.003*
	4	8.000	2.015	.007*
2	1	-3.118	1.417	.257
	3	1.882	1.457	1.000
	4	4.882	2.014	.166
3	1	-5.000	1.160	.003*
	2	-1.882	1.457	1.000
	4	3.000	1.458	.338
4	1	-8.000	2.015	.007*
	2	-4.882	2.014	.166
	3	-3.000	1.458	.338

Note. * indicates statistical significance at $p < .05$.

ABC-2 Stereotypic Behaviors

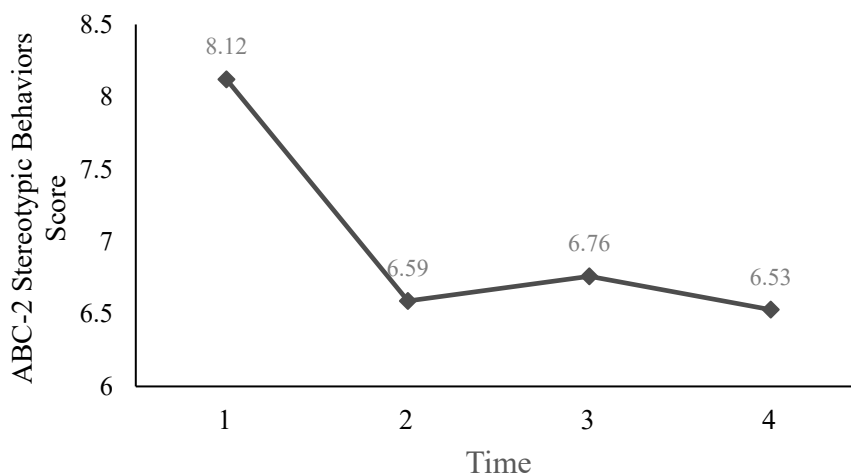
Repeated measures ANOVA assessed the impact of CCPT on Stereotypic Behaviors subscale scores on the ABC-2 at intake (time 1), after 8 sessions of CCPT (time 2), after 12 sessions of CCPT (time 3), and after 16 sessions of CCPT (time 4) as reported by teachers. The assumptions for independence of observations, multivariate normality, and homogeneity of variance were all reasonably met. When examining the means of participants over time (see Fig. C.8), observation indicates a decrease in the average ABC-2 Stereotypic Behaviors scores from intake to session 8, a slight increase from session 8 to 12, and then a decrease from session 8 to

16. Decrease of average Stereotypic Behaviors score from intake to session 16 marked an overall decrease in children's repetitive and restrictive interest.

There was a statistically insignificant effect for time, Wilks' $\lambda = .844$, $F(3, 14) = .860$, $p = .485$, $\eta_p^2 = .156$, observed power = .19. Thus, there was a statistically insignificant correlation between time and decrease in ABC-2 Stereotypic Behaviors. However, the partial eta squared indicated a large effect size as interpreted by Cohen's (1988) criteria. This may indicate that the study was underpowered, or the sample size was not sufficient to detect statistically significant differences, and that future exploration of the impact of play therapy on Stereotypic Behaviors may be appropriate. Due to statistically insignificant results, I did not conduct a pairwise comparison analysis.

Figure C.8

Means over time on ABC-2 Stereotypic Behaviors Score



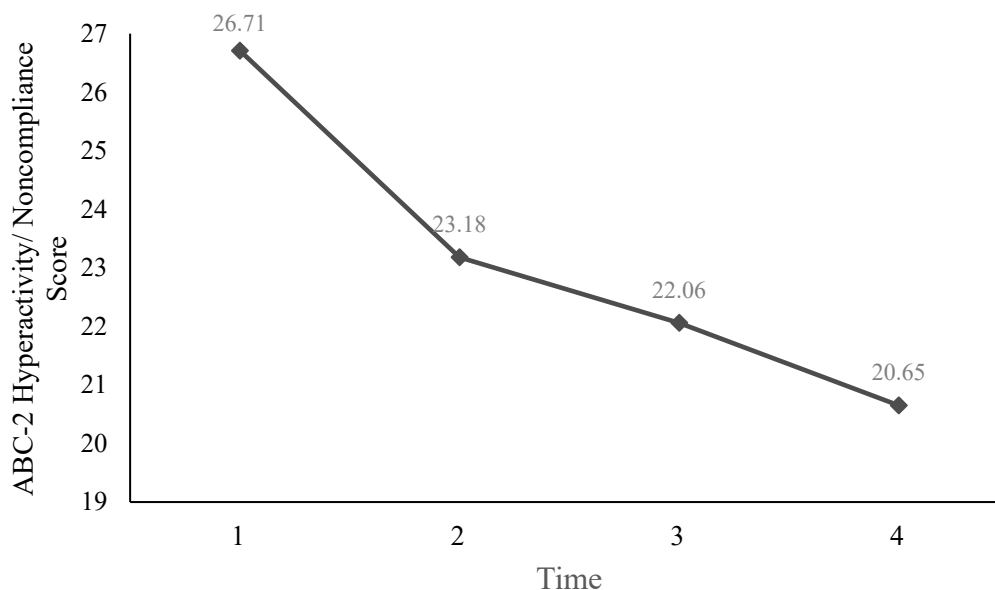
ABC-2 Hyperactivity/ Noncompliance

Next, a repeated measures ANOVA was conducted to assess the impact of CCPT on Hyperactivity/ Noncompliance subscale scores on the ABC-2 at intake (time 1), after 8 sessions

of CCPT (time 2), after 12 sessions of CCPT (time 3), and after 16 sessions of CCPT (time 4) as reported by teachers. The assumptions for independence of observations, multivariate normality, and homogeneity of variance were all reasonably met. When examining the means of participants over time (see Fig. C.9), observation indicates a continuous decrease in the average ABC-2 Hyperactivity/ Noncompliance scores from intake to session 16, marking overall improvement in participant's aspects of attention deficits, hyperactivity, and disruptive behavioral problems.

Figure C.9

Means over time on ABC-2 Hyperactivity/ Noncompliance Score



There was a statistically significant effect for time, Wilks' $\lambda = .493$, $F(3, 14) = 4.791$, $p = .017$, $\eta_p^2 = .507$, observed power = .80. Thus, there was a statistically significant correlation between time and decrease in the ABC-2 Hyperactivity/ Noncompliance scores, with a large effect. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores

occurred (see Table C.9). Cohen's d was calculated for each statistically significant difference. Statistically significant differences were found between time points 1 and 4 with a medium to large effect size ($p = .004$, $d = .64$). In summary, participants demonstrated a statistically significant decrease in aspects of hyperactivity and disruptive behavioral problems between intake and after 16 sessions of CCPT with medium to large effects.

Table C.9

Pairwise Comparisons for Teacher-Reported ABC-2 Hyperactivity/ Noncompliance (N = 17)

Time (I)	Time (J)	Mean Difference (I-J)	Std. Error	Sig.
1	2	3.529	1.764	.376
	3	4.647	1.755	.105
	4	6.059	1.587	.009*
2	1	-3.529	1.764	.376
	3	1.118	1.658	1.000
	4	2.529	1.213	.321
3	1	-4.647	1.755	.105
	2	-1.118	1.658	1.000
	4	1.412	1.135	1.000
4	1	-6.059	1.587	.009*
	2	-2.529	1.213	.321
	3	-1.412	1.135	1.000

Note. * indicates statistical significance at $p < .05$.

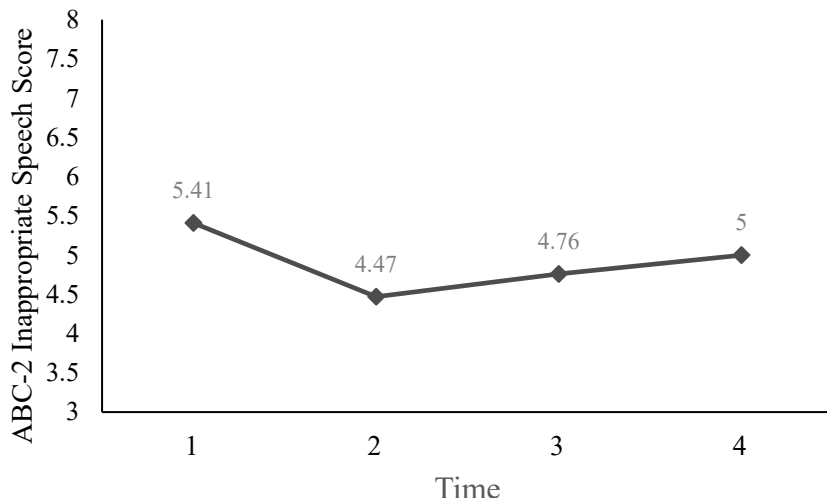
ABC-2 Inappropriate Speech

The last repeated measures ANOVA assessed the impact of CCPT on Inappropriate Speech subscale scores on the ABC-2 at intake (time 1), after 8 sessions of CCPT (time 2), after 12 sessions of CCPT (time 3), and after 16 sessions of CCPT (time 4) as reported by teachers. The assumptions for independence of observations, multivariate normality, and homogeneity of variance were all reasonably met. When examining the means of participants over time (see Fig. C.10), observation indicates a decrease in the average ABC-2 Inappropriate Speech scores from intake to session 8, and a slight increase from session 8 through 16session. The decrease in

average score between intake and 16 sessions marked a decrease in children's disruptive verbal behaviors.

Figure C.10

Means over time on ABC-2 Inappropriate Speech Score



There was a statistically insignificant effect for time, Wilks' $\lambda = .783$, $F(3, 14) = 1.296$, $p = .315$, $\eta_p^2 = .217$, observed power = .27. Thus, there was a statistically insignificant correlation between time and decrease in ABC-2 Inappropriate Speech scores. However, the partial eta squared indicated a large effect size as interpreted by Cohen's (1988) criteria. This may indicate that the study was underpowered, or the sample size was not sufficient to detect statistically significant differences, and that future exploration of the impact of play therapy on Inappropriate Speech may be appropriate. Due to statistically insignificant results, I did not conduct a pairwise comparison analysis.

Table C.10 provides a summary of the statistical results of all dependent variables in the current study. Statistically significant results indicate increased number of CCPT sessions

predicted improvement in social-emotional competencies, and decrease in emotional and behavioral problems, such as irritability, social withdrawal, and hyperactivity, with large effects.

Table C.10

Summary of statistical results over four points of measurement

Dependent Variables	P Value	Partial Eta Squared
SEARS-T (<i>n</i> =18)		
Total	.043*	.411 ^L
Self-Regulation	.101	.331 ^L
Social Competence	.018*	.480 ^L
Empathy	.025*	.453 ^L
Responsibility	.508	.139 ^L
ABC-2 (<i>n</i> =17)		
Irritability	.031*	.458 ^L
Social Withdrawal	.008*	.562 ^L
Stereotypic Behaviors	.485	.156 ^L
Hyperactivity/ Noncompliance	.017*	.507 ^L
Inappropriate Speech	.315	.217 ^L

Note. SEARS-T = Social-Emotional Assets and Resilience Scales-Teacher, ABC-2 = Aberrant Behavior Checklist-Second Edition. P values are based on statistically significant progress over the four points of measure. Partial Eta Squared values are based on variance accounted for across the four points of measure.

* Indicates statistical significance at $p < .05$.

^L Reflects a large effect size according to Cohen's (1988) criteria.

Clinical Significance

In order to address the clinical significance of results, I explored the magnitude of differences in clinical impairment based on the ABC-2 due to its historical use as a measurement for autism spectrum problem symptoms. According to the analyses, results indicated meaningful clinical significance. As shown in Fig. C.11, participants' ABC-2 scores improved over time across all subscales. At intake, near half of the participants (47.1%) had a score within the ≥ 84 percentile range for ABC-2 Irritability subscale, indicating severe emotional and acting-out behaviors. During the final time measurement, 6 (35.3%) participants scored within the 84

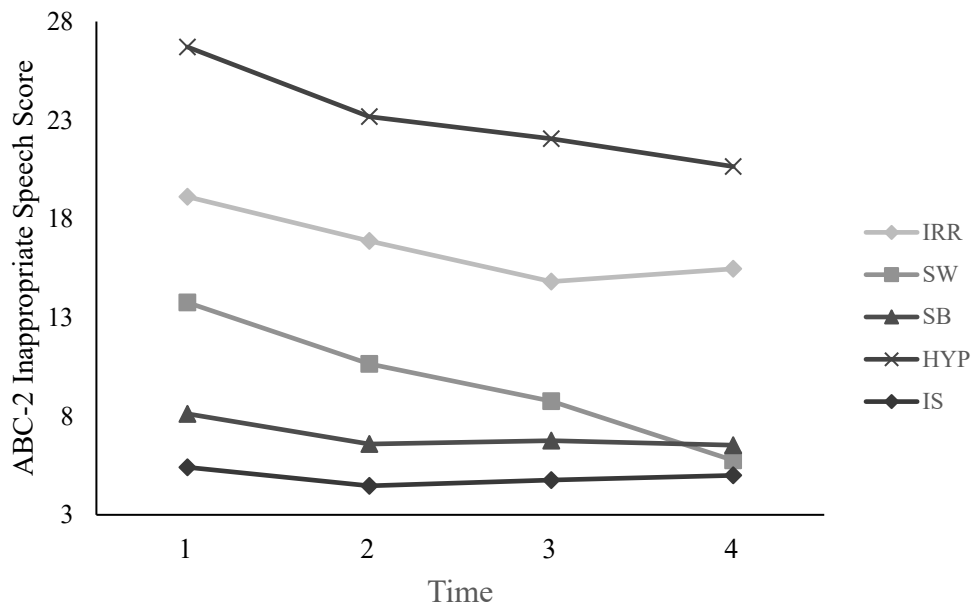
percentile range on the ABC-2 Irritability scale, while near half (47.1%) scored below the 50 percentile range, indicating these children's scores were as well as or better than 50% of autistic children rated by the ABC-2.

Of all 17 participants, 7 (41.2%) had a score within the ≥ 84 percentile range at intake for ABC-2 Social Withdrawal subscale, indicating severe social impairment. During the final time measurement, none of the participants scored within the 84 percentile range on the ABC-2 Social Withdrawal scale, while 14 (82% of participants) scored below the 50 percentile range, indicating these children's social behavior matched or exceeded the social behaviors of 50% of autistic children rated by the ABC-2. This decrease in scores reflected an improvement in clinical severity of social impairment reported by teachers.

In addition, 8 (47.1%) participants had a score within the ≥ 84 percentile range at intake for ABC-2 Hyperactivity/ Noncompliance subscale, indicating severe attention deficits, hyperactivity, and disruptive behavioral problems. During the final time measurement, only 2(11%) of the participants scored within the 84 percentile range on the ABC-2 Hyperactivity/ Noncompliance subscale, while 8 (47.1% of participants) scored below the 50 percentile range, indicating these children's hyperactivity behaviors matched or exceeded the behavioral expectations of 50% of autistic children rated by the ABC-2. These results indicate clinically significant change in children's level of attention deficits, hyperactivity, and disruptive behavioral problems as reported by teachers.

Figure C.11

Means over time on all ABC-2 Subscales



Note: IRR = Irritability, SW = Social Withdrawal, SB = Stereotypic Behaviors, HYP = Hyperactivity, IS = Inappropriate Speech.

Post-hoc Analyses

Noting that almost half of the participants also received behavioral intervention (ABA), I decided to explore differences in scores between children who received both ABA and CCPT, in comparison to those who received CCPT without ABA. Table C.11 summarizes the mean scores comparison between the two groups at pre-test and post-test for SEARS-T and ABC-2. No statistically significant differences between groups were identified at pre-test for all subscales. Mixed between-within subjects ANOVAs were conducted to assess the impact of CCPT with and without ABA on participants' scores across all dependent variables. Summary of analyses can be found in Table C.12. Results indicated children who participated in CCPT without ABA

appeared to demonstrate better progress with meaningful effect sizes, when compared to children who participated in both CCPT and ABA.

Table C.11

Mean Scores Comparison Across Two Time Periods for Children who participated in CCPT with and without ABA

Dependent Variables	Group	N	Pre-test		Post-test	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SEARS-T Total	CCPT + ABA	7	27.29	2.928	27.43	2.149
	CCPT	11	30.18	4.490	34.00	5.119
ABC-2 Irritability	CCPT + ABA	8	18.75	9.331	17.38	11.338
	CCPT	9	19.44	9.435	13.78	9.615
ABC-2 Social Withdrawal	CCPT + ABA	8	12.50	11.868	6.5	4.512
	CCPT	9	14.89	7.424	5.11	4.221
ABC-2 Stereotypic Behaviors	CCPT + ABA	8	8.25	5.825	7.13	5.939
	CCPT	9	8.00	6.423	6.00	7.681
ABC-2 Hyperactivity/Noncompliance	CCPT + ABA	8	26.88	6.813	22.88	7.990
	CCPT	9	26.56	11.103	18.67	11.247
ABC-2 Inappropriate Speech	CCPT + ABA	8	5.13	3.758	5.00	3.586
	CCPT	9	5.67	3.808	5.00	2.291

Note. SEARS-T = Social-Emotional Assets and Resilience Scales-Teacher, ABC-2 = Aberrant Behavior Checklist-Second Edition.

Table C.12

Comparison of Children who participated in CCPT with and without ABA over Two Points of Measurement

Dependent Variables	Effect					
	Time		Group		Time*Group	
	<i>p</i>	η_p^2	<i>p</i>	η_p^2	<i>p</i>	η_p^2
SEARS-T (<i>n</i> =18)						
Total	.012*	.336 ^L	.022*	.287 ^L	.018*	.304 ^L
ABC-2 (<i>n</i> =17)						
Irritability	.062	.213 ^L	.752	.007 ^S	.238	.092 ^M
Social Withdrawal	.001*	.503 ^L	.872	.002 ^S	.366	.055 ^M
Stereotypic Behaviors	.126	.149 ^L	.824	.003 ^S	.657	.014 ^S
Hyperactivity/ Noncompliance	.002*	.491 ^L	.614	.017 ^S	.233	.094 ^M
Inappropriate Speech	.568	.022 ^S	.860	.002 ^S	.695	.011 ^S

Note. SEARS-T = Social-Emotional Assets and Resilience Scales-Teacher, ABC-2 = Aberrant Behavior Checklist-Second Edition. P values are based on statistically significant progress over the two points of measure. Partial Eta Squared values are based on variance accounted for across the two points of measure.

* Indicates statistical significance at $p < .05$.

^{S, M, L} Reflect small, medium, and large effects sizes according to Cohen's (1988) criteria.

APPENDIX D
EXTENDED DISCUSSION

In the current study, I examined the impact of CCPT on emotional and behavioral problems in children on the autism spectrum. By utilizing a within-subject design, I investigated changes in the participants' scores on the SEARS-T and ABC-2 across four points of measure throughout their participation in CCPT. Teachers reported statistically and practically significant results indicating that they observed improvement in autistic child participants' social-emotional competencies and decrease in emotional and behavioral problems following participation in CCPT. In addition, clinically significant results in participants' improvement in emotional and behavioral problems supported the viability of CCPT as a social-emotional intervention for children on the autism spectrum.

Impact of CCPT with Children on the Autism Spectrum

The current study is the first repeated-measures design study exploring the relationships between participation in CCPT and social, emotional, and behavioral problems of children on the autism spectrum. Repeated-measures design allows an effective investigation of participants' changes over time at different stages of their CCPT intervention (Lix & Keselman, 2019). Statistical analyses revealed increased time participating in CCPT predicted statistically significant improvement in social-emotional competencies, and emotional and behavioral problems with large effects. These results indicated CCPT may be a potential holistic psychological intervention for autistic children to support their social-emotional competencies as well as emotional and behavioral concerns.

Social-Emotional Assets

Results of the current study indicated that CCPT may be a potential psychological intervention for autistic children to improve their social-emotional assets, particularly in areas of empathy and social competence. Previous CCPT research showed neurotypical children

improved their SEARS scores after participation in CCPT compared to children in waitlist control groups (Blalock et al., 2019; Cheng & Ray, 2016; Wilson & Ray, 2018). Cheng & Ray (2016) reported children who participated in group CCPT demonstrated statistically and practically significant increases in parent-reported total social-emotional competency scores, specifically social competence and empathy subscales, indicating parents observed substantial improvement in their children's social-emotional assets, social competence, and empathy. Results from Blalock et al.'s (2019) study showed similar results that children who participated in either individual or group CCPT demonstrated statistically significant improvement in parent-reported total scores, self-regulation/responsibility, and social competence subscales, as compared to children in a wait-list control group, who experienced negligible improvement. These results indicated parents reported substantial improvement in their children's social-emotional assets, self-regulation, and social competence after participation in CCPT. In Wilson & Ray's (2018) study, researchers reported that children who participated in 16 sessions of individual CCPT showed statistically significant increases in their parent-reported scores in the self-regulation and empathy subscales, with large effect sizes.

For autistic children, Ware Balch and Ray (2015) examined the impact of CCPT on social competence, self-regulation, and empathy in a single-case research design study. All five participants showed improved social competence, while three children showed increased self-regulation and empathy. The current study yielded similar results to the previous studies, supporting CCPT's responsiveness to the development of social-emotional assets, empathy, and social competence in autistic children.

Emotional and Behavioral Problems

The current study explored child participants' progress with emotional and behavioral problems in the areas of irritability, social withdrawal, hyperactivity/noncompliance, stereotypic behavior, and inappropriate speech. Statistical analyses revealed statistically significant improvements in irritability, social withdrawal, and hyperactivity/noncompliance, with large practical effects across all subscales. In line with previous findings (Kenny & Winick, 2000; Ray et al., 2007; Schottelkorb et al., 2020; Swan & Ray, 2014; Ware Balch & Ray, 2015; Wilson and Ray, 2018), the current study affirmed CCPT as a developmentally appropriate intervention for children on the autism spectrum with overall positive results.

Irritability

Autistic child participants' increased time in CCPT predicted statistically significant decrease in irritability with a large effect size. This finding is consistent with previous CCPT studies with autistic children and children identified with intellectual disabilities (Kenny & Winick, 2000; Swan & Ray, 2014). Kenny and Winick's (2000) case study found a school-age autistic girl improved her social behavior and reduced irritability after participation in 11 weekly CCPT sessions. Swan & Ray's (2014) single case research study found two children identified with intellectual disabilities decreased their levels of irritability after participation in 15 CCPT sessions. CCPT researchers postulated the play therapist's empathy and attunement allowed autistic children to become more aware of their own feelings and needs and to express themselves in healthy and appropriate ways (Ray et al., 2012; Swan & Ray, 2014). Results of the current study further extend support for the use of CCPT with autistic children with varying developmental challenges that exhibit irritability and acting out behaviors.

Social Withdrawal

Autistic child participants' increased time in CCPT predicted statistically significant decreases in social withdrawal with a large effect size. Currently, limited empirical research exists in examining the impact of CCPT on socially withdrawn behaviors. In a small exploratory study, Cheng & Tsai (2014) found that neurotypical children showed statistically significant decrease in social withdrawn behaviors after participating in 10 weekly CCPT sessions. Results of Josefi and Ryan's (2004) case study suggested that nondirective play therapy may enhance autistic children's social and emotional development. Schottelkorb and colleagues (2020) found that autistic children who participated in 24 CCPT sessions demonstrated statistically significant improved social responsiveness with large effects, whereas autistic children in the control group showed decreases in social skills. Previous research indicates autistic children with poor communication skills tend to show higher levels of social withdrawal (Kaat et al., 2014; Matson et al., 2009; Shea et al., 2018). In CCPT, play therapists establish a feeling of permissiveness in the relationship, and consistently facilitate children's self-expression through reflective responses (Axline, 1947; Ray et al., 2012). Social engagement may have improved in the current study due to participants' experiences of free expression in CCPT. The present study contributes to CCPT research by providing preliminary evidence that CCPT may be considered as a social-emotional intervention to improve social behavior in autistic children.

Hyperactivity/noncompliance

Consistent with previous CCPT research (Kram, 2019; Swan & Ray, 2014; Ray et al., 2007), the current study showed autistic child participants' increased time in CCPT resulted in statistically significant decreases in hyperactivity/noncompliance with a large effect size. Kram (2019) found that children showing symptoms of attention-deficit/hyperactivity disorder

(ADHD) demonstrated statistically significant improvements in attention and impulsivity after participating in 16 CCPT sessions. Ray et al. (2007) reported that children who participated in 16 CCPT sessions reduced ADHD symptoms. Additionally, Swan & Ray (2014) observed that two children identified with intellectual disabilities decreased their levels of hyperactivity/noncompliance after participation in 15 CCPT sessions. As in previous empirical studies where participants showed improvement after receiving CCPT, the present study demonstrated that CCPT may be a viable intervention for reducing hyperactivity and noncompliance among autistic children.

Stereotypic Behavior

CCPT empirical research among autistic children has focused on autism symptomology, social difficulties, or competencies as a broad construct without examining the specific outcome of stereotypic behavior (Schottelkorb et al., 2020; Ware Balch & Ray, 2015). Carson (2009) conceptualized stereotypical behaviors as the child's direct reaction to sensory experience. The researcher proposed that an autistic child's self-stimulatory behaviors, such as spinning, flapping, and tapping could be their attempts to feel in control and to gain a sense of safety. Autism research has also recognized stereotypic behaviors may serve as a way of emotional self-regulation for children on the autism spectrum (Martínez-González et al., 2022). Moreover, researchers found that stereotypic and repetitive behaviors are associated with social communication (Martínez-González et al., 2022), adaptive behaviors, and cognitive abilities (Kaat et al., 2014). In the current sample, the majority of children were identified with intellectual disabilities and speech and language impairments. Analyses indicated participants showed non-statistically significant decrease in stereotypic behaviors. It is possible that participants in the current study maintained stereotypic behaviors as their natural way of self-

expression and regulation. However, more research is needed to explore the relationship between stereotypic behaviors and CCPT.

Inappropriate Speech

Previous CCPT studies have not examined the effects of CCPT on inappropriate speech. For the current study, analyses indicated participants showed non-statistically significant decreases in inappropriate speech. However, teachers reported several participants increased self-expression through gestures and body language. The ABC-2 Inappropriate Speech subscale, the measure used for the current study, consists of only four items that measure disruptive speech behaviors. Given that nearly half of the participants were non-speaking or minimally verbal, the ABC-2 Inappropriate Speech subscale may not be an appropriate measurement to assess their speech development throughout CCPT intervention.

In summary, overall improvement in social-emotional assets total scores, and behavioral subscale scores suggested holistic movement and growth observed by teachers across participation time in CCPT. These results provide support for the observation of social, emotional, and behavioral growth that take place holistically when children are provided with a facilitative therapeutic environment. Historical studies and meta-analyses on CCPT outcomes (Lin & Bratton, 2015; Ray et al., 2015) demonstrated its effectiveness among neurotypical children. The present study showed that CCPT may facilitate positive effects on global development in autistic children as well. Lin & Bratton (2015) found that CCPT is effective across a wide range of presenting issues and is particularly beneficial for the combination of internalized and externalized behaviors, children's self-esteem, and care-giver relationships stress. In Ray et al.'s (2015) meta-analysis, CCPT generated statistically significant outcomes for total problem behavior, internalizing outcomes, and externalizing outcomes among child

participants. In the current study, large effect sizes between .411 and .562 (η_p^2) were observed across social, emotional, and behavioral outcome measures. This indicated that 41.1% to 56.2% of the improvement could be explained by increased time in CCPT. These results contribute to the current body of research that supports CCPT's cultural and developmental inclusivity for neurodivergent populations.

Time Effects Across Course of Intervention

A repeated-measures design used in the current study allowed identification of points of improvement over time by analyzing when a change occurred among the four measurement points. For both empathy and social competence, the first statistically significant change occurred between intake and session 8, the second statistically significant change occurred between intake and session 12, and the third statistically significant change took place between intake and session 16. These results suggested that as early as after 8 sessions of CCPT, teachers reported observed improvements in participants' empathy and social competence; and these improvements persisted throughout the remaining CCPT intervention period. For empathy, teachers reported the most substantial difference between intake and session 8, and large effects were maintained until session 16. For social competence, teachers reported small to medium effects between intake and session 8, as well as between intake and session 12. The largest improvement was observed between intake and session 16. For example, one teacher reported her student spontaneously reached to comfort a peer by saying “it’s ok” when that peer was in distress. This student demonstrated their increased level of empathy as evidenced by becoming aware of a peer’s feelings as well as attempting to comfort the peer. Another teacher reported her student initiated a verbal response without being given a specific prompt. Majority of participants showed increased comfort engaging in group activities as reported by their teachers.

In CCPT, the play therapist's intention and ability to convey empathic understanding to children is considered the most influential component of the therapeutic relationship, allowing children to continuously feel understood (Landreth, 2012). Throughout the process of CCPT, autistic children not only experience unwavering acceptance and understanding from the play therapist, but they also gain opportunities to expand their capacity to recognize and understand other's perspective feelings when the play therapist provided genuine emotional expressions within session. The provision of a selection of toys including nurturing toys and healing items also allowed opportunities for autistic children to play out their need to nurture and to be nurtured. Following eight sessions of CCPT, autistic child participants demonstrated substantial improvements in empathy reported by teachers, indicating they had been receptive to the empathy shared by their play therapist.

To further understand the impact of CCPT in irritability, social withdrawal, and hyperactivity/ noncompliance, pairwise comparison analyses allowed the investigation of when changes emerged across the course of intervention. Analyses indicated teachers reported the largest difference in participants' irritability scores between intake and session 12. Teachers reported statistically significant changes in participants' social withdrawal between intake and session 12 with medium to large effect, then large effects were reported between intake and session 16. Additionally, the largest differences in participants' hyperactivity/ noncompliance were detected between intake and session 16. Hence, for autistic child participants in the current study, social withdrawal began to improve after session 12, while irritability and hyperactivity/noncompliance improvement was reported after session 16.

Previous CCPT research results suggested parents reported significant improvement after children had participated in at least 11 CCPT sessions (Ray, 2008). Comparatively, results of the

present study suggested that autistic children may need longer time in intervention before teacher reported observable changes. According to the sequence of when noticeable changes were reported, teachers first reported improvements in empathy and social competence after session 8, then decreased social withdrawal after session 12, followed by a reduction in irritability and hyperactivity/noncompliance after session 16.

The sequence of changes occurring during the intervention appeared to support the CCPT theory that social, emotional, and behavioral changes are seen as natural outcomes of a person's intrinsic growth when an individual develops an attitude of self-worth and diminishes the perception of external threats to self-concept (Landreth, 2012; Ray, 2011; Ray et al., 2012). In the case of the autistic child participants in the present study, it is possible that they first perceived feelings of worthiness and acceptance from the play therapist, then as their sense of self-acceptance increased, they were able to demonstrate empathy towards others and increased comfort in social situations, leading to reduction of social withdrawal. And given their sense of self-acceptance increased with participation in CCPT, they were able to demonstrate positive emotions and behaviors that are consistent with their positive self-concept, hence reduction of irritability and hyperactivity occurred.

Theoretical Considerations in Autism Intervention

Common in behavioral intervention (e.g., ABA) for autistic children, social behaviors and emotional expressions are conceptualized as discrete skills to be taught and trained using operant conditioning and external reinforcement (Fishbein et al., 2017; Ringdahl et al., 2009). In contrast, CCPT views social and emotional competencies as intrinsic self-enhancing behaviors resulting from an individual's perceived self-worth and self-acceptance within a relationship of empathy, unconditional positive regards, and genuineness (Axline, 1947; Landreth, 2012; Ray,

2011). Strain and Schwartz (2001) proposed that children initiate and maintain social interactions through reciprocal social overtures, rather than relying on prompts and complimenting statements. Through CCPT, autistic children are able to express their emotions and initiate social interactions within the relationship built with their play therapist, and eventually generalize their growth into the classroom. All three CCPT counselors who participated in this study reported experiencing moments of genuine reciprocity, whereby mutual connections were formed with each child participant, indicating the possibility and therapeutic benefits of focusing on the relationships with autistic children during intervention. Based on the results of the current study, CCPT, a relationally based intervention, may be useful in supporting autistic children in exploring and expanding their social and emotional competencies through child-directed play.

Therapeutic Outcomes with Adjunct Services

One unexpected finding, based on post-hoc analyses, was that participants who participated in CCPT showed better progress across all outcomes, compared to participants who participated in both behavioral intervention (ABA) and CCPT. Based on criticism of behavioral interventions in current literature, behavioral interventions rely on reinforcement, modeling, and repetition to modify behaviors, but fail to address emotional regulation, which Berkovits et al (2017) believed was the underlying process of internalizing and externalizing behaviors for autistic children. Additionally, punitive procedures in behavioral interventions may lead to traumatic experiences and philosophical dissonance with positive behavior supports (Cumming et al., 2020; Sandoval-Norton et al., 2019; Schuck et al., 2022). Participants receiving both ABA and CCPT might experience philosophical dissonance, which could explain the difference in outcome between the ABA+CCPT and CCPT groups. In light of the limitations of the current research design, causal conclusions are not appropriate. Future research using an experimental

design could provide clinical insight into comparing therapeutic outcomes of ABA and CCPT in terms of social, emotional, and behavioral outcomes.

Social Validity of CCPT

Previous qualitative research among individuals on the autism spectrum highlighted autistic individuals' desires to gain a sense of autonomy and normalization in their interventions (Cumming et al., 2020). Hence, the current study explored the social validity of CCPT by collecting teachers', parents' and play therapists' subjective experiences during and after participation in CCPT. One teacher observed a participant exclaim, "that was awesome!" when returning to the classroom after play therapy. A teacher's aide reported to the play therapist that, "the students all love going to play therapy!"; another teacher reported, "the student gets excited to go with you!". At conclusion of the study, when I (the play therapist) stated to a participant that "today is our last time of play therapy", the non-speaking participant squeezed my hand to express sadness. Within play therapy sessions, multiple participants initiated physical contact with the play therapists and expressed desire to connect with the play therapists through child-directed nurturing play. The observations confirmed the social validity of CCPT, whereby participants demonstrated intrinsic motivation, appeared to feel accepted as who they are, and were drawn to the relationship with the play therapists.

During parent consultation with a parent of a non-speaking child participant, I (the play therapist) reported the child showed increased interest to participate in play therapy and began to express affection toward the play therapist through expression of excitement and initiation of physical contact. The parent replied "My daughter is an excellent judge of character. The fact that she shows that she likes you is just confirmation you're doing an excellent job in caring for her. The people she's drawn to are always the ones who are patient with her, and spend time to

notice her, who feel excited in her interest.” This parent summed up the essence of the attitude of a CCPT therapist that may not be fully captured by discrete skills or a set protocol. Moreover, this parent highlighted a great strength of autistic children that often get overlooked - that an autistic child is perceptive and has high sensitivity in identifying people they can trust. These qualities are valued in CCPT, as seen in play therapist’s effort of accepting the person of the child and facilitating each participant to grow at their own pace.

Methodological Considerations

Currently, autism literature indicates a lack of research beyond behavioral interventions. A large body of research supports behavioral interventions as an evidence-based practice for behavioral changes among autistic individuals; however, limited research exists to explore emotional, relational, or mental health outcomes among this population (Berkovits et al., 2017; Strain & Schwartz, 2001; Virués-Ortega, 2010; Wong et al., 2015). Moreover, national data revealed underutilization of autism interventions, particularly among communities of color and economically disadvantaged families (Angell et al., 2018; Monz et al., 2019). To fill in gaps in autism research, the present study addressed emotional and mental health outcomes, and several multicultural considerations.

Sample Characteristics

The cultural and developmental diversity of participants was a strength in the current study, providing support for CCPT as a culturally and developmentally responsive intervention. Over 60% of participants were children of color identified by parents. The participants appeared representative of the school populations lending credibility to generalizability of findings among racial/ethnic minoritized child population. Moreover, of the 19 participants, parents reported 13 (68.4%) participants experienced moderate to severe impairment of functioning due to autism, 11

(57.9%) participants have co-occurring mild to severe intellectual disability; all participants presented with speech and language impairment, with 17(89.5%) experienced moderate to severe impairment. The sample characteristics of participants in the current study support the utilization of CCPT as a developmentally responsive intervention for autistic children across functionality, with varying social communication, cognitive, and language abilities. In addition, the sample consisted of 15 (78.9%) boys and 4 (21.1%) girls. The boy-to-girl ratio was 3.75 to 1, resembling the gender ratio of autism identification (3.8:1) according to latest research findings (CDC, 2023). Low number of female participants remained a limitation of the current study to understand the needs of autistic girls.

Measurement

In the current study, I utilized two standardized assessments, the SEARS (Merrell, 2011), a strength-based assessment, and ABC-2 (Aman & Singh, 2017), a behavioral checklist, to obtain a holistic understanding of progress among autistic child participants. Considering that the SEARS was developed and normed among neurotypical populations, Ware Balch and Ray (2015) discussed the need for future validation of SEARS among neurodivergent populations. In the current study, participants demonstrated a statistically significant improvement in SEARS-T total scores between intake and after participation in 16 sessions of CCPT, indicating this instrument was able to capture autistic children's growth in social-emotional competencies within an 8 to 10-week period. The use of the SEARS allowed clinicians and researcher to focus not only on the deficits but also the competencies of children on the autism spectrum.

Based on the post-hoc analyses, the changes on SEARS-T total scores are attributed to participants' substantial improvement in the Social Competence (SC) and Empathy (EM) subscale scores. On the contrary, minimal changes were detected in the Self-Regulation (SR) and

Responsibility (RE) subscales. The Self-Regulation subscale consists of items such as “is good at settling disagreements of other students”, “can figure out whether or not negative thoughts are realistic”, and “can identify errors in the way he/she thinks about things”. The Responsibility subscale includes items such as “works independently on assignments without help”, and “works well with other students on group projects”. A number of these items seemed to require higher verbal communication and problem-solving skills, as well as executive functioning skills, which are particularly challenging for autistic children, especially those with intellectual disabilities and limited speech. In selecting assessments to monitor progress among autistic children, it appeared necessary to consider the cognitive and language abilities of individuals. Clinicians may consider referring to the subscales of the SEARS rather than using only the total scores when administering the SEARS to autistic children and adolescents in clinical practice and research.

Furthermore, as shown by its ability to capture emotional and behavioral changes across four times of measurement, ABC-2 appeared to be a sensitive and appropriate measurement to assess treatment effects of CCPT among autistic children. This finding supported previous research (Brinkley et al., 2007; Fok & Bal, 2019; Kaat et al., 2014), determining the fitness of ABC-2 as an instrument to assess emotional and behavioral treatment outcomes among individuals on the autism spectrum across cognitive and developmental abilities. Although, it is noteworthy that the Inappropriate Speech subscale was developed to assess disruptive verbal behaviors. The subscale does not appear to measure speech and language impairment in autistic children exhibiting non-verbal and minimally verbal behaviors.

Protocol Adherence and Treatment Integrity

In the present study, CCPT intervention was facilitated by three doctoral-level counselors who adhered to Ray’s (2011) CCPT treatment protocol. Results of fidelity checks using the

Child Centered Play Therapy–Research Integrity Checklist (CCPT-RIC, Ray et al., 2017)

indicated 99% of the time, play therapists used verbal CCPT responses. Play therapist's high adherence to CCPT protocol indicated play therapists did not modify their verbal approach during intervention. Given the holistic improvement of participants, the current study appeared to support the idea that CCPT protocol alone, without additional techniques or modification, could yield positive outcomes. Future research that compares CCPT to other forms of intervention may inform clinician's practice and client's intervention selection.

Although, it is noteworthy that CCPT play therapists embody attunement in their practice and often utilize both non-verbal and verbal responses to establish rapport with children. Also, Swan (2018) recommended pre-therapy skills that are consistent with CCPT approach, such as body movement imitation and object imitation to enhance psychological contact between therapist and autistic children. These skills are not captured in the CCPT-RIC, even though play therapists in the current study reported using them. Nevertheless, the presence and the attitudes of the play therapist are foundational relational qualities in CCPT that cannot be fully captured by a checklist. Therefore, future research in the areas of non-verbal skills and relational qualities in CCPT may enhance clinician's effectiveness, especially when working with children on the autism spectrum.

Significance of Teacher-Involvement

The current study demonstrated positive outcomes of CCPT in classroom settings according to the teacher report, indicating a strength of the study. Several CCPT researchers reported variability in teacher versus parent reports on children's behaviors and emotional outcomes due to barriers within educational settings and uncontrolled environment when administering teacher assessment (Blalock et al., 2019; Cheng & Ray, 2016; Wilson & Ray,

2018). For example, Cheng & Ray (2016) reported teachers may experience difficulties identifying changes in students due to unfamiliarity with students at pre-intervention time, busy schedule, stress, and external distraction. Blalock et al. (2019), on the other hand, considered the sensitivity of selected instrument to measure teacher perceptions of the observed variables of the study. Wilson and Ray (2018) proposed teachers may be more sensitive to behavioral changes in the classroom when they establish a stronger relationship with the students and are involved during intervention.

In the current study, data collection involved play therapists' regular check-ins with the teacher through consultations and administration of assessment, as part of the research protocol in a repeated-measures design study. Play therapists of the current study administered assessment four times across the intervention period. Ray's (2011) recommendation that caregiver consultation occurs every 3 to 5 sessions was reflected in the frequency of therapist-teacher consultations. During these consultations, play therapists summarized teacher's concerns regarding the child, and noted observed changes without teaching any skills to the teacher. It is possible that consistency in therapist-teacher communication in the current study increased teacher's sensitivity to individual children's changes in the classroom environment. Moreover, most of the child participants were educationally placed in autism classrooms with a teacher-to-student ratio of approximately 1:2.6. Compared to general education classrooms, these autism classrooms may offer teachers a greater sense of closeness to their students because of their smaller class sizes. As a result, teachers may be able to accurately evaluate each student's performance and consistently administer the assessment throughout the 8 to 10 weeks of CCPT. Findings from the current study highlighted the importance of teacher-involvement in CCPT within educational settings and may be more applicable to students in special education. Future

studies including teacher consultations as part of the standard procedures of CCPT may inform play therapists' clinical practice to improve therapeutic outcomes.

Limitations of the Study

The current study's repeated-measures design improved credibility and rigor, but several limitations affected interpretation of the results. The present study adopted a non-experimental design, the lack of randomization and control group limits the ability to account for extraneous or confounding variables (e.g., history, maturation, regression, attention, and testing). Readers should interpret these results with caution due to possible carry-over effects from adjunct interventions that were not controlled for in this study.

Secondly, I utilized convenience sampling in Title 1 schools, limiting the generalization of results to all children on the autism spectrum. As a result of its small sample size ($N = 19$), this study also suffered from generalization limitations similar to previous CCPT studies among autistic children. While the current sample included autistic children with a variety of levels of impairment, such as cognitive development, speech and language ability, and medical conditions, normality and homogeneity of variance of sampling data were reasonably met.

In addition, when calculating suggested sample size with G*Power prior to data collection, a total of 24 participants were suggested to meet an alpha of 0.05, medium effect size of 0.25, and power of 0.8. For the current sample, observed power for the repeated measures ANOVAs with statistically significant results were between .66 and .88. However, when performing multiple post hoc analyses, I applied Bonferroni corrections to reduce probability of Type 1 errors.

Limited by the current research design, I relied only on teacher reports of the outcome and changes. The lack of blind experimenters to treatment also increased risks of subjectivity and

biases. In addition, the absence of follow-up assessments after treatment restricted my ability to examine long-term effects of CCPT. Future studies might include multiple informants, extend intervention duration, and incorporate follow-up measures.

Implications

The findings of the current study provided implications for clinical practice and research in CCPT and autism interventions. Clinicians may consider CCPT as an alternative to behavioral intervention for autistic children, considering CCPT provides a holistic conceptualization of social, emotional, and behavioral development for children on the autism spectrum. This study also opened up new directions for research.

Clinical Implications

This study demonstrated the importance of recognizing the relationship between social, emotional, and behavioral difficulties among children on the autism spectrum. CCPT may be a developmentally appropriate intervention for improving social-emotional competencies and emotional and behavioral outcomes in autistic children across cognitive and language abilities. As a relational communication intervention, CCPT appeared to facilitate the development of a trusting relationship between the play therapist and the child, leading to a greater ability for autistic children to express themselves fully, develop self-awareness, and develop social skills and communication skills to better express their emotions.

Although autistic children present high rates of emotional and behavioral difficulties that are not limited to the diagnostic features of autism, national data indicated underutilization of psychological intervention, particularly among communities of color and economically disadvantaged families (Angell et al., 2018; Monz et al., 2019). School-based CCPT may be a practical model for school counselors and school-based mental health counselors to increase

accessibility and reduce the stigma and mistrust associated with mental health services for children on the autism spectrum. In terms of intervention model, bi-weekly 30-minute sessions appeared to benefit autistic children in establishing rapport with play therapist. Thus, clinicians in various mental health settings may consider adopting this intensive model when using CCPT for autistic children, rather than the traditional once-per-week model. Moreover, teacher involvement appeared to be an advantage of the current study in establishing partnership and informing treatment progress. Clinicians are encouraged to include regular teacher consultation as part of their CCPT intervention for autistic children.

Currently, recognized evidence-based intervention for autism consists mainly of behavioral modifications and social skills training (CDC, 2022; NAC, 2015). Few research studies exist in the understanding of the emotional well-being of children on the autism spectrum (NAC, 2015; Wong et al., 2015). Child counselors may enhance their clinical practice with children on the autism spectrum by receiving training in and delivering evidence-based child interventions focusing on emotional and mental health outcomes. Preliminary results of current study, as well as previous empirical research (Schottelkorb et al., 2020; Ware Balch & Ray, 2015), indicate that CCPT may be a viable holistic intervention for social-emotional competencies and emotional and behavioral problems for children on the autism spectrum.

Based on the current study, play therapists reported three major considerations when implementing CCPT protocol with children on the autism spectrum, including: a) clinical experience and supervision, b) materials and play therapy room set up, and c) consistency of CCPT skills.

Clinical Experience and Supervision

All three play therapists were doctoral-level counselors who completed at least three graduate courses in play therapy and had acquired clinical experience working with both neurotypical and autistic children in CCPT. Play therapists reported prior clinical experiences in CCPT helped them solidify case conceptualization when working with autistic children. Additionally, weekly supervision with a supervisor familiar with autism populations enhanced skills application, especially in challenging situations such as issues surrounding physical boundaries and touch, and therapeutic limits regarding aggressive behavior.

Materials and Play Therapy Room Set up

In the present study, play therapists observed that autistic children were drawn to different toys and materials based on their personal interests, sensory and relational needs. In the play therapy room, participants naturally explored more items as their sense of safety and comfort increased. To allow autistic children to choose their own direction of play, it appeared important to include CCPT toys and materials of all traditional categories, such as real-life toys, acting-out aggressive-release toys, and toys for creative expression and emotional release (Landreth, 2012). Play therapists reported adjusting the quantity or size of materials to ensure safety and accommodate motor dexterity and sensory stimulation levels. This allowed autistic children to express themselves fully and establish relationships with the play therapist. Moreover, play therapists may consider the size and color of the play therapy room to create an inviting therapeutic space for autistic children. For example, play therapists provided 1 inch of sand in the sandbox (compared to typically 3-4 inches) to prevent overstimulation but allow opportunities for autistic children to engage in sensory exploration and exercise self-control. Considering that some participants put toys in their mouths, play therapists selected toddler-safe

toys, such as a toolbox kit and medical items with smooth edges and musical instruments with no small parts to prevent choking hazard. While half of the participants enjoyed a more closed-off play therapy space marked off by curtains of a neutral color, the other participants indicated preference to open up the curtains during the play session, and the freedom to explore the whole classroom space. Play therapists may consider picking neutral colors for the play therapy room to create an inviting therapeutic space for autistic children.

Consistency of CCPT Skills

For maintaining consistency in using CCPT skills, play therapists reported developmental considerations when working with autistic children. First, play therapists reported body and sound imitations helped them maintain interests and psychological contact when the autistic child was engaged in self-absorbed play. When navigating the personal and structural boundaries of the play therapy relationship, play therapists observed that autistic children benefited from the play therapist's patience in repeating Landreth's (2012) ACT model of therapeutic limit setting. Across cognitive developmental levels, play therapists noted children on the autism spectrum may require repetition of the ACT model more than neurotypical children. Particularly, by emphasizing "acknowledgment of feelings and desires" and "communication of limitations", play therapists facilitate autistic children's process and understanding of both their own needs and the meaning of the limitation. The Choice Giving method (Ray, 2011) is another way play therapists used to facilitate autistic children's self-enhancing decisions by communicating trust in their ability to make choices. For example, with one 5-year-old non-verbal participant, the play therapist set the limit to leave the room over 15 times. Although the child struggled emotionally with the limit, the child eventually held out their hand to the play therapist to leave the room. The

patience in limit-setting appeared to allow the child a sense of autonomy followed by the ability to intrinsically desire to follow the limit.

Play therapists in the current study reported the example limit-setting procedures as follows. During transitions when play therapy time is up, the play therapist acknowledged the child's frustration, and communicated the limit by saying, "[child's name], you're really frustrated, but our play time is up for today." The play therapist repeated A (acknowledgement) and C (communication of limits) by attuning to the child's experience, such as, "Ugh, it's really hard for you to leave right now, but our play time is up for today", "You really enjoy your time in here, but our play time is up for today". The play therapist may also have approached the child at their eye level to their side or in front of them as they repeated A and C to establish psychological contact. As the play therapist experienced psychological contact with the child, indicated by eye contact or slight change in their actions, the play therapist moved into T (targeting alternative behaviors) by offering choices, such as, "You can choose to hold my hand, or you can choose to walk by yourself." As the child showed reactions to the play therapist, the play therapist replied to the child adhering to the ACT model, "You really don't like to go right now, but our time is up for today. You can choose to hold my hand, or you can choose to walk by yourself." As the play therapist offered the choices, the play therapist demonstrated consistent body language of offering her hand to the child and then pointing at the exit.

Research Implications

The current study was the first repeated measures study exploring the impact of CCPT on autistic children specifically focusing on emotional and behavioral outcomes. Although national health organizations such as the CDC (2022) recommended integrative interventions for autism populations to address their developmental, social, and psychological needs, little research exists

to support mental health and emotional interventions for children on the spectrum. The present study provided preliminary support for CCPT as a social-relational and psychological intervention that matched CDC's (2022) guidelines. However, it is imperative to conduct additional research on this population to replicate the results. To strengthen the empirical evidence supporting CCPT's efficacy as an autism intervention, future researchers may use an experimental design. A randomized controlled trial that compares CCPT with a behavioral intervention may help researchers understand the difference between interventions on social-emotional outcomes. Future studies may also include multiple reporters to measure changes among participants in different settings.

In light of the close correlation between cognitive ability, social-communication skills, and emotional and behavioral problems, researchers and clinicians may be able to better understand the correlation between clinical characteristics before and after CCPT intervention using multivariate statistics. Additionally, larger studies may help generalize research findings in future studies. Follow-up studies and longitudinal studies may demonstrate CCPT's long-term effects on emotional and behavioral outcomes for autistic children. Finally, observational studies that measure relational growth within play therapy sessions may be useful for clinicians who wish to better understand the process and skills involved in CCPT that facilitate positive social, emotional, and behavioral outcomes among autistic children.

Conclusion

The current study contributes to existing CCPT research supporting its cultural and developmental appropriateness as a holistic social-relational intervention for autistic children with emotional and behavioral problems, across cognitive, speech, and language abilities. Using repeated measures design, I was able to identify the process of change over a period of four

measurement points. Statistical results from the current study suggest that autistic children receiving 8 CCPT sessions began to demonstrate significant improvement in empathy and social competence, and after 12 CCPT sessions, they showed significant improvements in social withdrawal, followed by substantial reductions in irritability and hyperactivity/ noncompliance after 16 CCPT sessions.

CCPT's theoretical framework for child development is validated by participants' holistic improvements across all outcome measures. Through CCPT, autistic children can express their emotions and initiate social interactions within the relationship built with their play therapist, eventually generalizing social, emotional, and behavioral growth to the classroom. Based on the findings of this study, CCPT may be a viable alternative intervention to behavioral intervention in enhancing the social and emotional competencies of autistic children.

Play therapists in the current study reported consistent implementation of CCPT non-verbal and verbal skills that enhanced the therapeutic relationship. The current study provides insight into the social validity and utility of this relationally based intervention. Play therapists reported considerations of clinical experience and supervision, materials and play therapy room set up, as well as consistency in CCPT skills. Through these considerations, the CCPT protocol was enhanced in its theoretical consistency while accommodating the cultural and developmental needs of autistic children.

To strengthen the empirical evidence supporting the efficacy of CCPT as an autism intervention, a randomized controlled trial should be conducted to address the limitations of the present study. Researchers may be able to better understand the differences between social-emotional outcomes by comparing CCPT with behavioral intervention in an experimental study. The sample size of randomized controlled trials would also be larger, increasing the

generalizability of the findings. Studies that use multivariate statistics can provide insight into the correlation between various social, emotional, and behavioral outcomes.

CCPT offers a facilitative therapeutic environment to autistic children where they are accepted and valued as unique individuals. CCPT play therapists foster intrinsic motivation and self-actualization through establishing a genuine relationship with the child. The positive social, emotional, and behavioral outcomes of participants following participation in CCPT affirms its use as a holistic psychological intervention for autistic children to support their social-emotional competencies as well as emotional and behavioral concerns. The current study yielded promising results that pave the way for future research on the application of CCPT with children on the autism spectrum.

APPENDIX E
ADDITIONAL MATERIAL

December 20, 2021

PI: Deanne Ray

Study Title: Child-Centered Play Therapy and the Social Emotional Competencies of Young Children Returning to School Following COVID-19 Conditions

RE: Human Subjects Application # IRB-21-498

Dear Dr. Deanne Ray:

The UNT Institutional Review Board (IRB) has received your request to modify your study titled "Child-Centered Play Therapy and the Social Emotional Competencies of Young Children Returning to School Following COVID-19 Conditions." As required by federal law and regulations governing the use of human subjects in research projects, the UNT IRB has examined the request to increase the number of sessions from 14 to 16 sessions, collect data from teachers at 4 different times, and to revise the informed consent documents to reflect these changes. The modification to this study is hereby approved for use with human subjects.

Attached to your Cayuse application in the Study Detail section under the Attachments tab are the consent documents with IRB approval. Please copy and use this form only for your study subjects.

Please contact The Office of Research Integrity and Compliance at (940) 565-4643, if you wish to make changes or need additional information.

Note: Please do not reply to this email. Please direct all questions to untirb@unt.edu

Sincerely,



Gabe Ignatow, Ph.D.
Professor
Chair, Institutional Review Board

GI:hs



UNIVERSITY OF NORTH TEXAS®

Informed Consent for Parents with Minor Children

TITLE OF RESEARCH STUDY: Child-Centered Play Therapy and the Social Emotional Competencies of Young Children Returning to School Following COVID-19 Conditions

RESEARCH TEAM: Dr. Dee Ray, Krystal Turner, and Regine Chung, University of North Texas (UNT) Department of Counseling and Higher Education.

Your child is being asked to participate in a research study. Taking part in this study is voluntary. The investigators will explain the study to you and will answer any questions you might have. It is your choice whether or not you allow your child to take part in this study. If you agree to have your child participate, and then choose to withdraw your child from the study, that is your right, and your decision will not be held against you.

Your child is being asked to take part in a research study which involves determining if play therapy is effective in helping children improve social emotional skills and reduce anxiety.

Participation in this research study involves your child participating in play therapy on a weekly basis for 16 sessions. In addition, a researcher will administer an assessment to your child to determine child's level of anxiety at the beginning and end of the study. Your child's homeroom teacher will be asked to fill out an assessment which asks the teacher to report perceptions of your child's social and emotional development before, during, and after the 16 sessions. More details will be provided in the next section.

You might want to participate in this study if you believe your child may benefit from play therapy services. We expect that children participating in play therapy will be increasingly aware of their own and others' feelings, thoughts, and needs; learn to interact in an accepting and supportive way; increase ability to develop self-responsibility and self-regulation; form and maintain relationships; and exhibit less disruptive behaviors and other interpersonal difficulties. These possible positive outcomes may ultimately contribute to their improvement in classroom learning and academic performance. The results of this study may further provide school counselors across the nation with knowledge regarding methods of best practice with children exhibiting academic challenges. However, you might not want to participate in this study if you believe you may be uncomfortable answering some of the personal questions.

You may choose to participate in this research study if you have a child in PreK to fourth grade who you believe may benefit from play therapy services.

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Approved on 12-20-2021
Expires on 10-3-2029

The reasonable foreseeable risks or discomforts to your child if you choose to allow him/her to take part is: possible discomfort when answering some of the personal questions, which you can compare to the possible benefit of your child increasing their ability to develop self-responsibility and self-regulation; form and maintain relationships; and exhibit less disruptive behaviors and other interpersonal difficulties. These possible positive outcomes may ultimately contribute to their improvement in classroom learning and academic performance. Your child will not receive compensation for participation.

DETAILED INFORMATION ABOUT THIS RESEARCH STUDY: The following is more detailed information about this study, in addition to the information listed above.

PURPOSE OF THE STUDY: The purpose of the study involves determining if play therapy is effective in helping children improve social emotional skills and reduce anxiety.

TIME COMMITMENT: You will be asked to complete a brief assessment which requires approximately 10 minutes at the beginning and end of the 16 sessions. The entire study will require approximately 20 minutes of your time. Your child will be administered one assessment by a researcher to determine your child's level of anxiety at the beginning and end of the 8-week period. This assessment will require approximately 20 minutes to complete and the entire study will require approximately 40 minutes of your child's time to complete assessments. Your child will participate in 16 play therapy sessions which last approximately 30-minutes each, totaling 8 hours.

STUDY PROCEDURES:

1. Your child will be asked to participate in play therapy. Play therapy is designed for children to express themselves in their natural way of playing with toys. Some elementary-age children have difficulty working through problems with words, so play therapy can help facilitate the process by providing a play environment from which they can work through those issues that may limit their academic progress. Through interactions with the therapist, we hope your child will become increasingly aware of his or her own and others' feelings, thoughts, and needs, as well as learn to interact in socially appropriate ways.

Your child decides what materials to play with and what to discuss in play therapy. Your child will not be asked any questions that are not intended to facilitate his/her awareness or growth. Your child will not be forced to play. The play sessions will be video-recorded. The research team will observe the recordings to ensure the quality of play therapy services and the integrity of the study.

2. If you consent for your child to participate in this study, your child will be placed in play therapy as soon as possible.
3. You will be asked to complete an assessment which requires approximately 10 minutes to complete. The assessment will be sent home to you through your child for you to complete.

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The assessment/s will need to be completed at two points in the study, the beginning and end of the 16 sessions. The entire study will require approximately 20 minutes of your time to complete assessments.

4. Your permission allows a researcher to administer an assessment to your child to determine your child's level of anxiety at the beginning and end of the study. This assessment will require approximately 20 minutes to complete. The assessments will need to be completed at two points in the study, the beginning and end of the 16 sessions. The entire study will require approximately 40 minutes of your child's time to complete assessments.
5. Your permission also allows your child's homeroom teacher to fill out an assessment which asks the teacher to report perceptions of your child's social and emotional development. The assessments will be delivered to your child's teacher by the therapist. Your child's teacher will be asked to complete this instrument before, during, and after the 16 sessions.

Allowing your child to participate in this research study will include this list of actions that we will ask you and your child to consider before engaging in the research:

1. Please read carefully the parental informed consent and child assent, and be sure to contact the research team with any questions or concerns you may have.
2. If you grant permission for your child's participation, your child will be scheduled for play therapy services.
3. A member of the research team will ask your child's teacher to complete an assessment regarding your child, assess your child at prior to, during, and following the 16 sessions, and ask you to complete assessments regarding your child.

AUDIO/VIDEO/PHOTOGRAPHY:

The play sessions will be video-recorded and a member of the research team will watch the recordings to look at the quality of play therapy services provided to your child. At the end of this study, the videos may possibly be shown in professional presentations for educational purposes. Identity information such as name, place of living, and other specific information will not be revealed when video recordings are shown in educational settings and will be destroyed through digital deletion after 5 years. Although we will not use identifying information when video recordings are shown in educational settings, your child's face can be seen which means we cannot guarantee anonymity. Pseudonyms that have no sound similarity to your child's name will be selected in place of your child's name. You may choose to withdraw your consent at any time and the video recordings of your child will not be used.

☐ I agree to have my child video recorded during the research study.

☐ I agree that the video recording can be used in publications or presentations.

☐ I do not agree that the video recording can be used in publications or presentations.

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☐ **I do not agree** to have my child video recorded during the research study.

Your child may not participate in the research study if you do not agree for your child to be video recorded.

The recordings will be kept with other electronic data in a secure UNT OneDrive account for the duration of the study.

POSSIBLE BENEFITS: We expect that children participating in play therapy will be increasingly aware of their own and others' feelings, thoughts, and needs; learn to interact in an accepting and supportive way; increase ability to develop self-responsibility and self-regulation; form and maintain relationships; and exhibit less disruptive behaviors and other interpersonal difficulties. These possible positive outcomes may ultimately contribute to their improvement in classroom learning and academic performance. The results of this study may further provide school counselors across the nation with knowledge regarding methods of best practice with children exhibiting academic challenges.

POSSIBLE RISKS/DISCOMFORTS: There are no significant personal risks expected from involvement in this study. Your participation is completely voluntary. You may discontinue participation at any time while completing the assessments. Remember that you and your child have the right to withdraw any study procedures at any time without penalty and may do so by informing the research team.

Participating in research may involve a loss of privacy and the potential for a breach in confidentiality. Study data will be physically and electronically secured by the research team. As with any use of electronic means to store data, there is a risk of breach of data security.

If you experience excessive discomfort when completing the research activity, you may choose to stop participating at any time without penalty. The researchers will try to prevent any problem that could happen, but the study may involve risks to the participant, which are currently unforeseeable. UNT does not provide medical services, or financial assistance for emotional distress or injuries that might happen from participating in this research. If you need to discuss your discomfort further, please contact a mental health provider, or you may contact the researcher who will refer you to appropriate services. If your need is urgent, you may contact the primary investigator for referrals for emotional support or call Denton County MHMR 24-hour crisis hotline at 940-387-5555.

COMPENSATION: There is no compensation for participation in this study.

CONFIDENTIALITY: Efforts will be made by the research team to keep you and your child's personal information private, including research study records, and disclosure will be limited to people who have a need to review this information. All paper and electronic data collected from this study will be stored in a secure location on the UNT campus and/or a secure UNT

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Version: January 2019

server for at least three (3) years past the end of this research confidential in a locked cabinet in the Center for Play Therapy of the Counseling Program at the University of North Texas Research records will be labeled with a code and the master key linking names with codes will be maintained in a separate and secure location.

The results of this study may be published and/or presented without naming you as a participant. The data collected about your child for this study may be used for future research studies that are not described in this consent form. If that occurs, an IRB would first evaluate the use of any information that is identifiable to you, and confidentiality protection would be maintained.

While absolute confidentiality cannot be guaranteed, the research team will make every effort to protect the confidentiality of your records, as described here and to the extent permitted by law. In addition to the research team, the following entities may have access to your records, but only on a need-to-know basis: the U.S. Department of Health and Human Services, the FDA (federal regulating agencies), the reviewing IRB, and sponsors of the study.

CONTACT INFORMATION FOR QUESTIONS ABOUT THE STUDY: If you have any questions about the study you may contact Dr. Dee Ray at 940 565 3864. Any questions you have regarding your rights as a research subject, or complaints about the research may be directed to the Office of Research Integrity and Compliance at 940-565-4643, or by email at untirb@unt.edu.

CONSENT:

- Your signature below indicates that you have read, or have had read to you all of the above.
- You confirm that you have been told the possible benefits, risks, and/or discomforts of the study.
- You understand that your child does not have to take part in this study, and your refusal to allow participation, or your decision to withdraw will involve no penalty or loss of rights or benefits.
- You understand your child's rights as a research participant and you voluntarily consent to allow your child to participate in this study; you also understand that the study personnel may choose to stop your child's participation at any time.
- By signing, you are not waiving any of [you and] your child's legal rights.

Please sign below if you are at least 18 years of age and voluntarily agree to participate in this study.

SIGNATURE OF PARTICIPANT

DATE

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Version: January 2019

*If you agree to participate, please provide a signed copy of this form to the researcher team.
They will provide you with a copy to keep for your records.

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University of North Texas
IRB-21-498
Approved on 12-20-2021
Expires on 10-3-2099



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Teacher Informed Consent

TITLE OF RESEARCH STUDY: Child-Centered Play Therapy and the Social Emotional Competencies of Young Children Returning to School Following COVID-19 Conditions

RESEARCH TEAM: Dr. Dee Ray, Krystal Turner, and Regine Chung, University of North Texas (UNT) Department of Counseling and Higher Education.

You are being asked to participate in a research study. Taking part in this study is voluntary. The investigators will explain the study to you and will answer any questions you might have. It is your choice whether or not you take part in this study. If you agree to participate and then choose to withdraw from the study, that is your right, and your decision will not be held against you.

You are being asked to take part in a research study which involves determining if play therapy is effective in helping children improve social emotional skills and reduce anxiety.

Your participation in this research study involves completing a brief assessment for each participating child in your classroom at four points in the study: the beginning, following 8 sessions, following 12 sessions and end of 16 play therapy sessions. Each assessment takes approximately 10 minutes to complete, totaling 40 minutes per child of your time for the entire study. More details will be provided in the next section.

You might want to participate in this study if you have children in your classroom who you believe could benefit from play therapy. Possible positive outcomes for children participating in the project include becoming increasingly aware of their own and others' feelings, thoughts, and needs; learning to interact in an accepting and supportive way; increasing ability to develop self-responsibility and self-regulation; forming and maintaining relationships; and exhibiting less disruptive behaviors and other interpersonal difficulties. These possible positive outcomes may ultimately contribute to their improvement in classroom learning and academic performance. The results of this study may further provide school counselors across the nation with knowledge regarding methods of best practice with children exhibiting academic challenges. However, you might not want to participate in this study if you do not have time to participate in the brief assessments.

You may choose to participate in this research study if a child in your classroom's parent provides permission for their child's participation in this study.

No foreseeable risks are involved in this study, which you can compare to the possible benefit of ultimately contributing to participating in children's improvement in classroom learning and academic performance.

DETAILED INFORMATION ABOUT THIS RESEARCH STUDY: The following is more detailed information about this study, in addition to the information listed above.

PURPOSE OF THE STUDY: The purpose of this research study involves determining if play therapy is effective in helping children improve social emotional skills and reduce anxiety.

TIME COMMITMENT: You will be asked to complete a brief assessment for each participating child in your classroom at four points in the study: the beginning, following 8 sessions, following 12 sessions and end of 16 play therapy sessions. Each assessment takes approximately 10 minutes to complete, totaling 40 minutes per child of your time for the entire study.

STUDY PROCEDURES:

1. Parents provide permission for their child's participation in this study.
2. Each participating child will be assigned to play therapy as soon as possible.
3. You will be asked to complete a brief assessment for each participating child in your classroom prior to the beginning of the 14 play therapy sessions.
4. Child will participate in 16 sessions of play therapy.
5. You will be asked to complete a brief assessment for each participating child at the end of 8 sessions, 12 sessions, and 16 sessions.

POSSIBLE BENEFITS: Possible positive outcomes for children participating in the project include becoming increasingly aware of their own and others' feelings, thoughts, and needs; learning to interact in an accepting and supportive way; increasing ability to develop self-responsibility and self-regulation; forming and maintaining relationships; and exhibiting less disruptive behaviors and other interpersonal difficulties. These possible positive outcomes may ultimately contribute to their improvement in classroom learning and academic performance. The results of this study may further provide school counselors across the nation with knowledge regarding methods of best practice with children exhibiting academic challenges.

POSSIBLE RISKS/DISCOMFORTS: No foreseeable risks are involved in this study. Remember that you have the right to withdraw any study procedures at any time without penalty, and may do so by informing the research team. This research study is not expected to pose any additional risks beyond what you would normally experience in your regular everyday life. However, if you do experience any discomfort, please inform the research team.

Participating in research may involve a loss of privacy and the potential for a breach in confidentiality. Study data will be physically and electronically secured by the research team. As with any use of electronic means to store data, there is a risk of breach of data security.

If you experience excessive discomfort when completing the research activity, you may choose to stop participating at any time without penalty. The researchers will try to prevent any problem that could happen, but the study may involve risks to the participant, which are currently unforeseeable. UNT does not provide medical services, or financial assistance for emotional distress or injuries that might happen from participating in this research. If you need to discuss your discomfort further, please contact a mental health provider, or you may contact the researcher who will refer you to appropriate services. If your need is urgent, helpful resources include UNT Mental Health Emergency line at 940-565-2741.

COMPENSATION: There is no compensation for participation in this study.

CONFIDENTIALITY: Efforts will be made by the research team to keep your personal information private, including research study materials, and disclosure will be limited to people who have a need to review this information. All paper and electronic data collected from this study will be stored in a secure location on the UNT campus and/or a secure UNT server for at least three (3) years past the end of this research in a locked cabinet in the Center for Play Therapy of the Counseling Program at the University of North Texas, Welch Building. Only the research team will have access to the cabinet. Information obtained from the instruments and background information form will be recorded with a code number according to schools, gender, and the alphabetical order of their names and the master key linking names with codes will be maintained in a separate and secure location. The personally identifiable data will be maintained for 5 years following the end of the study. The data will be destroyed after the period of 5 years. Confidentiality of your individual information will be maintained in any publications or presentations regarding this study

The results of this study may be published and/or presented without naming you as a participant. The data collected about you for this study may be used for future research studies that are not described in this consent form. If that occurs, an IRB would first evaluate the use of any information that is identifiable to you, and confidentiality protection would be maintained.

While absolute confidentiality cannot be guaranteed, the research team will make every effort to protect the confidentiality of your records, as described here and to the extent permitted by law. In addition to the research team, the following entities may have access to your records, but only on a need-to-know basis: the U.S. Department of Health and Human Services, the FDA (federal regulating agencies), the reviewing IRB, and sponsors of the study.

CONTACT INFORMATION FOR QUESTIONS ABOUT THE STUDY: If you have any questions about the study you may contact Dr. Dee Ray at 940 565 3864. Any questions you have regarding your rights as a research subject, or complaints about the research may be directed to the Office of Research Integrity and Compliance at 940-565-4643, or by email at untirb@unt.edu.

CONSENT:

- Your signature below indicates that you have read, or have had read to you all of the above.
- You confirm that you have been told the possible benefits, risks, and/or discomforts of the study.
- You understand that you do not have to take part in this study and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits.
- You understand your rights as a research participant and you voluntarily consent to participate in this study; you also understand that the study personnel may choose to stop your participation at any time.
- By signing, you are not waiving any of your legal rights.

Please sign below if you are at least 18 years of age and voluntarily agree to participate in this study.

SIGNATURE OF PARTICIPANT

DATE

***If you agree to participate, please provide a signed copy of this form to the researcher team. They will provide you with a copy to keep for your records.**

Demographic Form

Dear Parent,

Thank you for your participation in our play therapy study. We greatly appreciate if you could fill out the following information.

Child Information:

Your child's first name Your child's last name Date of birth

Gender: _____ Age: _____ Ethnicity: _____

Please select the service your child is currently receiving for autism spectrum disorder (check all that applies):

- ☐ Behavioral Intervention (e.g., ABA Therapy) ☐ Life Skill Training
- ☐ Speech Therapy ☐ Other: _____
- ☐ Occupational Therapy

Parent/Guardian Information:

Your first name Your last name:

Parent/Guardian phone number: _____

Best time to contact for a phone consultation to review your child's play therapy progress and assessment results (day/time):

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